# CONSTRUCTION NEWS

EDITORIAL COMMENT, PERSONALS, ENGINEERING SOCIETIES, INDUSTRIAL NOTES, TRADE PUBLICATIONS.

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We are in receipt of one of the fairest sets of specifications that we have ever seen. The specifications have been drawn by the Engineers of the Department of the Interior for the Irrigation Canals, Truckee River, Nevada.

While the work is one of great magnitude and while a considerable variety of work is involved, it is refreshing to find not a single clause that can be construed to work a hardship upon the contractor. Not only is there absence of ambiguity, but each clause is brief and to the point. Paragraph 28 of the specifications is typical and we quote it:

> In case the contractor should fail to complete the work in the time agreed upon in the contract, or in such extra time as may have been allowed for reasonable delays incident to the work, the engineer shall compute and appraise the direct damages for the loss sustained by the Secretary of the Interior, on account of further employment of engineers, inspectors, and other employees, including all disbursements on the engineering account, properly chargeable to the work. The amount so appraised and computed shall be deducted from any money due the contractor under his contract. The decision of the Chief Engineer, as to the appraisal of such damages, shall be final and binding upon both parties.

There is no contractor who will not regard the foregoing as being perfectly fair. So often we find a "penalty clause" or a "liquidated damage clause" that fines the contractor, say, $100 a day for every day beyond the time limit; and, then to make a pretence of keeping within the law, the same clause allows the contractor $1 a day for every day that is saved.

If it is worth $100 a day to complete work within a given time, it is surely worth that much on either side of the time limit, and a fair specification should allow the contractor a $100 daily bonus under such conditions. Ordinarily, however, the best criterion of the value of a day lost or gained on such work as this, is the daily engineering expense of supervision. Hence the clause above quoted is commendable. It might have been made even more effective by allowing the contractor the same bonus for every day saved. Such a bonus, we think, would act as a stimulus, and it would serve as a prize that most contractors wou'd strive for, if only for the name of having won it.

In the same specifications we find a classification of excavation that might lead to trouble. At any rate similar clauses have lead to trouble in the past. We quote:

> All materials moved in grading shall be measured in excavation only, and estimated by the cubic yard under the following classes:
>
> Class 1.—All material that can be plowed by an average eight-mule team, each animal weighing not less than twelve hundred (1,200) lbs., attached to a suitable ten-inch breaking plow, all well handled, by at least four men. Also, all loose material than can, without plowing, be loaded into a scraper by two men.
>
> Class 2.—Indurated material of all kinds, which cannot be plowed as in Class 1, but which requires loosening by powder, and can then be removed by scraper.
>
> Class 3.—All detached masses of rock, more than two and less than ten cubic feet in volume. And all slate or other rocks, soft or loose enough to be removed without blasting.
>
> Class 4.—All rock, not included in the above classes, which requires drilling and blasting.

Contractors on the Erie Canal improvement will recall that a similar classification of materials was specified, and that the "plow test" was the one prescribed. They will also recall that when the Canal Investigating Committee made its report, the State Engineer was severely censured for classifying hardpan as rock. Without going into details, it was a case of disagreement among engineers, and of perfectly honest disagreement as to whether the material in question was really plowable or not. We all know that it is possible to plow certain shales and hardpans, loosening small chunks of the material, when from a point of economy it pays far better to blast it. Therefore to so word a plow test as to entirely prevent dispute is an impossibility. To us it seems far better to have on file samples of the various materials that are to be encountered and to refer to those samples in the specifications, basing all classification thereon. This may mean additional work for the engineers in making the survey, but a day's work on test pits may save a month's salary on lawyers' fees.

The Making of Concrete Coping, editorially discussed elsewhere in this issue, is a matter of practical importance to very many contractors. A design for a knock-down form to be used in coping a wall with concrete is shown which has many points in its favor. In fact, knock-down forms for entire walls are often made, and a design for one of these will be shown in a subsequent issue. It is by no means necessary, in every case, to make a separate form for coping, but it often facilitates progress on the main wall not to bother with the coping during the building of the body of the wall. A coping must be neat in appearance, and it is often specified that it be made of concrete richer in cement than the body of the wall, in which case the knock-down form is especially to be recommended. In any case, a nicely finished coping sets off the whole wall to such a degree that it will pay the contractor to give it considerable attention, even when the specifications do not call for especially careful work. The use of some coloring matter, like the red oxide of iron that forms the base of most red paints, will often add to the favorable appearance of the wall, if this coloring matter is well mixed with the facing mortar of the coping. The top of the coping should slope slightly toward the rear of the wall, so that rain water will not drain over the face of the wall and stain it. This and other points are discussed in the editorial mentioned.

### Does It Pay to Rush Work?

We all know that there is a limit to the number of men that can be worked to advantage on any job. Put more men on the work, and they are in one another's way. Take some men off, and the fixed expenses begin to eat up profits. There is always a happy medium that the contractor seeks to maintain, but the happiest medium is not always the one selected by the contractor.

The contractor of experience has learned that it does not pay to invest a great deal of money in a plant suitable only for special work, unless he is assured of a great amount of that work. He knows that paper profits often vanish when such a plant is finally disposed of; for usually it must be sold at a sacrifice. Or, if it is not sold, he is liable to even greater loss in having a large part of his working capital tied up.

For these reasons when the average contractor is awarded a piece of work for which he really should have a larger plant than he possesses, his inclination is to carry the work through by hook or by crook without buying more tools. In a word, he decides to drag the work along somehow, and trust to luck that the penalty clause for non-completion within the time limit will not be enforced. Is this a good business policy? Run over in your mind the contracting firms that are always well spoken of by engineers, and ask yourself what is the chief characteristic of the work done by those firms. Almost without exception you will find their most noticeable policy is the policy of rushing work to a finish. It is true that it costs them a greater sum per cubic yard to get their work done, but it will be observed that somehow they always get more work to do. Those contractors have been students of human nature, as well as of costs, and they have early learned that in the eyes of nine engineers out of ten almost anything is pardonable but slowness.

Now there is usually a very good reason why the engineer is eager to have work rushed, for he in turn is being "pounded on the back." If he is in charge of sewer work or street paving he hears one continuous howl about torn-up streets. If he is in charge of railway work the directors of the road are demanding instant completion so that earnings will be available to pay interest on bonds. There is in fact scarcely any class of engineering work, public or private, where some one of influence is not urging the engineer to "hurry it along."

In view of these conditions it is not at all surprising that the reputation of a contractor depends more upon his energy in the execution of work than upon all else.

If looked upon in a broad way it will be seen that, in the end, the energetic contractor is the gainer in more ways than this one of good reputation. It is not alone the profit that is made upon each yard of work that determines success, for that profit must be multiplied by the number of yards handled each working season. Where work is rushed the actual profit on each yard may be small, but due to the great number of yards handled, the total profit will be large. An old and successful contractor said: "I never bite off more than I can chew, but I chew what I bite off fast."

## PERSONAL.

Mr. Jacob Laird, for some years past City Engineer of Mansfield, O., has resigned.

Mr. W. R. Hill has resigned as Chief Engineer of the Aqueduct Commission of New York City.

Mr. John B. Newton has been appointed President and General Manager of the Virginia & Southwestern Ry., with headquarters at Radford, Va.

Mr. C. L. Ewing has been appointed Assistant Superintendent of the St. Louis Division of the Illinois Central R. R., with office at Carbondale, Ill.

Mr. E. Blanchard, Resident Engineer of the Crawford Branch of Tennessee Central R. R., has resigned. He is succeeded by Mr. Dan Young of Hopkinsville, Ky.

Mr. Wm. V. McMenimen, of East Cambridge, Mass., has been appointed to the corps of Civil Engineers U. S. Navy, at the League Island Navy Yard, Philadelphia, Pa.

Mr. A. D. Akin, Bridge Inspector of the Tennessee Construction Co., has resigned to enter the contracting field as a member of the firm of J. C. Monday & Co., masonry contractors.

Mr. G. R. Henderson, Superintendent of Motive Power of the Atchison, Topeka & Santa Fe Ry., has tendered his resignation to take effect Aug. 1, owing to the state of his health.

Mr. E. T. Fassig has been appointed Treasurer of the A. K. Rarig Engineering Co., of Columbus, O., succeeding Mr. A. K. Rarig, Pres. Mr. T. Brown is appointed General Superintendent.

Mr. Otto Schroll, Superintendent of the Richmond Division of the P., C., C & St. L., has been appointed Superintendent of the Toledo Division of the Pennsylvania R. R., succeeding Mr. L. Ohliger.

Mr. William Meadowcraft, of the corps of civil engineers of the Metropolitan Water and Sewerage Board of Boston, Mass., has been appointed to a position in the Manila water department.

Mr. William Currie of the Stanley Electric Mfg. Co., heretofore Mr. C. C. Chesney's assistant at the Pittsfield Works, has been appointed Sales Engineer of the Chicago office of the company.

Mr. Samuel M. Kennard has resigned as President of the St. Louis & Suburban Ry., St. Louis, Mo., and will probably be succeeded by Mr. Julius S. Walsh, President of the Mississippi Valley Trust Co., the Union Electric Lighting Co., the Terminal R. R. Association, and various other corporations.

Mr. Wilford A. Thompson, who for some time has been Engineer for an irrigation company in southern California, has accepted a position as Engineer with the Buchler-Cooney Construction Co., of St. Louis, Mo.

Mr. William S. Root, of the Engineering Department of the New York Central R. R., was among those injured in the collision which occurred at Buffalo on July 4th, between an express train and a yard engine.

Mr. Chas. Worthington, M. Am. Soc. C. E., has opened an office in the Farmers' Bank Bldg., Pittsburg, Pa., where he will continue the practice of Engineering, making a specialty of designing steel framed structures.

Mr. R. G. Doerfling, Assoc. M. Am. Soc. C. E., has opened an office in the Starr King Bldg., 121 Geary St., San Francisco, Cal., to carry on his practice. Mr. Doerfling was formerly Structural Engineer for P. Noble, successor to the Pacific Rolling Mills, San Francisco.

Mr. W. E. Corey, President of the Carnegie Steel Co., has been elected an assistant to Mr. Charles M. Schwab, President of the United States Steel Corporation, by the Finance Committee of that Corporation, to perform the active duties of the president owing to the ill health of Mr. Schwab.

Mr. W. H. Starr has resigned as Superintendent of the Cincinnati, New Orleans & Texas Pacific Ry., with office at Somerset, Ky. Mr. M. W. Maguire, General Superintendent, has been transferred back to his former position succeeding Mr. Starr, and the office of General Superintendent is abolished.

Mr. Othniel F. Nichols, M. Am. Soc. C. E., Assistant Engineer in the Department of Bridges of New York city, has been dismissed by Bridge Commissioner Gustav Lindenthal for appearing before the Finance Committee of the Board of Aldermen and opposing the plans for the eye-bar cable scheme for the new Manhattan Bridge.

Mr. J. A. Green, Civil Engineer, of Denver, Colo., for the past three years employed by the Oregon Short Line Ry. at Pocatello, Idaho, and recently by the American Falls Canal Co. at Blackfoot, Idaho, disappeared mysteriously on June 22. He was visiting some friends in Blackfoot, and the following night his team was found on the west side of the Snake River, wandering about without a driver.

Mr. Joseph Otis Osgood, Member (and a Director) Amer. Soc. C. E., Chief Engineer of the Central R. R. of N. J., was the guest of honor at a dinner given by his fellow resident members of the profession of Plainfield, N. J., at the Park Avenue Hotel, that city, on the evening of June 30th. About 40 guests were present and the occasion was a most enjoyable one. Among the few out of town guests were Charles Warren Hunt, Secretary Am. Soc. C. E., and Benjamin Church, former Chief Engineer of the Sullivan Croton Water Supply.

In the recent examinations for civil engineers at the New York Navy Yard Messrs. DeWitt C. Webb of Vermont, Walter H. Allen of Massachusetts, Charles L. Hammond of Massachusetts, Hugh Borland of Washington, and Willis B. Hays of Pennsylvania, passed the examination for full Civil Engineer; and Messrs. James V. Rockwell of Iowa, Joseph S. Shultz of Pennsylvania, Carl A. Carlson of Ohio and Ralph M. Warfield of Massachusetts the examination for Assistant Civil Engineers. Messrs. Webb, Allen, Rockwell, Shultz and Carlson have been appointed to fill existing vacancies in the Corps of Civil Engineers of the Navy.

Mr. Conway Bethune Hunt, M. Am. Soc. C. E., has been appointed by the District Commissioners Engineer of Highways in charge of all surface improvements, including the maintenance and construction of bridges, paving, sidewalks, etc., in the District of Columbia. Mr. Hunt graduated from the Rensselaer Polytechnic Institute in 1882 and was for a number of years in the Construction Department of the Pennsylvania R. R. He afterward had charge under the Chief of Engineers, U. S. A., of the construction of the Pennsylvania Ave. and Bennings bridges over the Eastern Branch, D. C., afterward becoming Engineer of Bridges and of County Roads for the District of Columbia. In 1896 he was appointed Computing Engineer, D. C., an office just merged into that of Engineer of Highways.

## OBITUARY

Mr. Robert A. Conolly, civil engineer and railway contractor, died June 28 at his home in Chicago, Ill., aged 73 years. Mr. Conally was born in Ireland and came to America in 1834.

Professor Luigi Cremona died at Rome, Italy, on June 10. The deceased, who was born in 1830 at Pavia, won fame principally through his development of the science of graphic statics; it will be recalled that force diagrams of frameworks are in Europe generally called Cremona diagrams. During the last thirty years of his life he was at the head of the Technical College at Rome, which, under his energetic leadership, developed from insignificant beginning to a respected position among European technical schools.

Mr. Elisha Gilbert Patterson, of Titusville, Pa., who was prominently connected with some of the early railway systems and with the development of the Pennsylvania oil regions, died at his home on May 29. He was born at Hudson, N. Y., on Oct. 26, 1833. In 1851 he entered the office of the Treasurer of the Hudson River R. R., and rose to the position of Assistant Treasurer. He was afterward appointed Auditor of the Michigan Southern & Northern Indiana Ry. Later he was successively Assistant Superintendent of the Milwaukee & Prairie du Chien Ry.; Manager of the Kenosha, Rockford & Rock Island Ry.; Assistant Superintendent of the Chicago & Northwestern Ry., and General Superintendent of the Raritan & Delaware Bay Ry.

Mr. J. J. Condon, railroad contractor of Knoxville, Tenn., was shot and killed in his office at Crawford, Tenn., on July 4, by a miner. Mr. Condon has been constructing a road from Crawford, on the Tennessee Central R. R., to the mines owned by Gen. J. T. Wilder, about nine miles away. He had some trouble with the miners and on the Fourth met some of them on his premises and was killed by one of them.

Mr. Patterson was married to Miss Ellen Maria Tefft, daughter of the late Israel K. Tefft of Rome, N. Y., and a niece of the founder of the firm of Tefft, Weller & Co. of New York. When the early oil excitement brought people to Titusville, Mr. Paterson was impressed with the prospects of the new industry and located at Pithole in 1866, where he was manager for the land owners of the Holmden farm. On his own account he was associated with James McNair in the production of petroleum on Cherry Run and later operated extensively in the Church Run district and at Bradford as a member of the firm of Emery, Patterson & Co. He was one of the projectors and a charter member of the Tide Water Pipe Line Co., and was interested in other pipe lines for the transportation of oil.

At one time he took much interest in the improvement of railway track, and invented a device for tamping by compressed air, blowing fine crushed stone into all the crevices of the ballast when the ties were raised for surfacing.

Mr. Patterson was a member of the Sons of the American Revolution, and of the Sons of the Colonial Wars. He leaves a widow, one son and four daughters, two of the latter being married.

Mr. George Shattuck Morison, Past President of the American Society of Civil Engineers, Member of the Isthmian Canal Commission, and very prominent as a bridge designer and railway expert, died in New York on July 1 after an illness of some weeks. Mr. Morison was born at New Bedford, Mass., Dec. 19, 1842. He was fitted for college at the Phillips Exeter Academy, and was graduated from Harvard in 1863; he studied law, was admitted to the New York Bar in 1866, and received the degree of LL. B., but he never practiced in this profession.

Preferring civil engineering, in October, 1867, he was employed on the Kansas City bridge, then being built over the Missouri River under Mr. Octave Chanute, Past Pesident Am. Soc. C. E., as Chief Engineer. In 1871 Mr. Morison removed to Detroit, and until 1873 he was Chief Engineer of the Detroit, Eel River & Illinois R. R., in Indiana. In 1873 he came to New York as Resident Engineer of the Erie Railway, and was later Principal Assistant to the Chief Engineer, Mr. Chanute. He remained with the Erie road until 1875, having in this interval replaced the famous wooden Portage Viaduct by an iron structure, the old bridge having been destroyed by fire on May 6, 1875.

During the next ten years, 1875-85, Mr. Morison was largely employed as an expert in examining and reporting upon the physical condition, relations, earning capacity and prospects of various railway lines in the United States; in this work he acted officially for the American representative of the Baring Bros., of London, and he served as a Director upon a number of railways. Mr. Morison was for a short time a member of the firm of Morison, Field & Co., bridge contractors; but preferring engineering to contract work he soon retired from this firm. In 1887 he removed to Chicago, still retaining his New York office, and until 1889 he was associated in general engineering practice with Mr. E. L. Corthell, M. Am. Soc. C. E., under the firm name of Morison & Corthell.

As an engineer, Mr. Morison was chiefly engaged in the design of bridges, and as Chief Engineer he built the following important structures: Over the Missouri River, the Plattsmouth, 1879-80; Bismarck, 1881-2; Blair Crossing, 1882-83; Omaha, 1885-87; Rulo, 1885-87, Nebraska City, 1887-88; Sioux City, 1887-88; Bellefontaine, 1892-93; Leavenworth, 1893. He built the Winona bridge across the Upper Mississippi in 1890-91, rebuilt the Burlington bridge in 1890-91, and the Alton bridge in 1892-93. Two of his greatest structures were the Cairo bridge over the Ohio, built in 1887-88, and the Memphis bridge across the lower Mississippi, built in 1889-92. As Consulting Engineer upon bridge work, his achievements were of almost equal importance, as he acted in this capacity and made the plans for the Merchants bridge at St. Louis, and was consulting engineer for the bridge over the Willamette, at Portland, Ore., the Riparia bridge over the Snake River, and the crossing of the St. John's River at Jacksonville, Fla.

In 1894, President Cleveland appointed Mr. Morison a member of a board to report upon a safe and practicable span for a bridge over the Hudson River at New York City. In 1898 President McKinley appointed him a member of the Isthmian Canal Commission, and he was a member of that commission at the time of his death, having performed marked service in this connection. He had previously—in 1895, served upon a board of consulting engineers in matters connected with the New York Dock Department, and in 1896 he was a member of a board for locating a deep-water harbor in Southern California.

Mr. Morison was a voluminous writer upon technical subjects, having contributed about thirty papers and reports to the published Transactions of the American Society of Civil Engineers alone. He was made a member of the American Society of Civil Engineers on [illegible] 1875, and was President of that Society in 1895. He was also a member of the Institution of Civil Engineers of Great Britain, the Western Society of Engineers, the American Institute of Mining Engineers, the American Society of Mechanical Engineers, and belonged to a number of social clubs in New York and Chicago. A portrait and an extended sketch of Mr. Morison's life were published in our issue of Jan. 31, 1895.

## ENGINEERING SOCIETIES.

### COMING MEETINGS.

AMERICAN PARK AND OUTDOOR ART ASSOCIATION.
July 7, 8, 9. Annual meeting at Buffalo, N. Y. Secy., C. M. Robinson, Rochester, N. Y.

AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.
July 17, 18. Annual convention at Niagara Falls, N. Y. Secy., W. M. Mackay, P. O. Box 1,818, New York city.

AMERICAN STREET RAILWAY ASSOCIATION.
Sept. 2 to 4. Annual convention at Saratoga Springs, N. Y. Secy., T. C. Penington, 2020 State St., Chicago, Ill.

AMERICAN INSTITUTE OF MINING ENGINEERS.—The next general meeting of this society will be held at New York city in October, 1903.

CANADIAN ELECTRICAL ASSOCIATION.—At the annual meeting which was held at Toronto, Ont., June 10 to 12, the following officers were elected for the coming year: President, Mr. J. J. Wright, Toronto; Vice-Presidents, Messrs. K. D. Thornton, Montreal, and A. A. Wright; Secretary (continued), Mr. C. H. Mortimer, Toronto. The next annual meeting will be held at Hamilton, Ont., in June, 1904.

## CONSTRUCTION NEWS.

### CONDENSED LIST OF CONTRACTS PENDING WITH DATE OF OPENING BIDS.

| Bids to be opened. | Work. | Place. | See Eng. News. |
|---|---|---|---|
| July 9. | Roads, | Rockville, Ind. | July 2 |
| July 9. | Bridge work, | Dayton, O. | July 2 |
| July 9. | Water pipe, etc., | Buffalo, N. Y. | July 2 |
| July 9. | Irrigation conduit, | Cheboygan, Wyo. | Jun. 25 |
| July 9. | Paving, | Cleveland, O. | Jun. 18 |
| July 9. | Building, | Fort McPherson, Ga. | Jun. 18 |
| July 9. | Paving, | Bryan, O. | Jun. 18 |
| | Advertised, Eng. News, Jun. 18 and 25. | | |
| July 9. | Building, | Boston, Mass. | July 9 |
| July 9. | Paving, | Bryan, O. | July 9 |
| July 10. | Water main extension, | Juneau, Wis. | July 9 |
| July 10. | Paving, | Warsaw, Ind. | July 9 |
| July 10. | Paving, | Monroe, Mich. | July 9 |
| July 10. | Sewers, | North Vernon, Ind. | July 9 |
| July 10. | Dredging, | New York, N. Y. | Jun. 11 |
| | Advertised, Eng. News, Jun. 11 to July 9. | | |
| July 10. | Water-works, | Sioux City, Ia. | Jun. 18 |
| | Advertised, Eng. News, Jun. 18 and 25. | | |
| July 10. | Paving, | Lorain, O. | Jun. 18 |
| July 10. | Arc lamps, | Danville, Ill. | Jun. 25 |
| July 10. | Bridge, | Castlewood, S. Dak. | Jun. 25 |
| July 10. | Building, | New York, N. Y. | July 2 |
| July 10. | Fire alarm telegraph, | New York, N. Y. | July 2 |
| July 10. | Fencing, | Danville, Ill. | July 2 |
| July 10. | Water tower, side ladders, | New York, N. Y. | July 2 |
| July 11. | Paving, | Brooklyn, N. Y. | July 2 |
| July 11. | Paving, | Buffalo, N. Y. | July 2 |
| July 11. | Bridge, | Buckingham, Va. | July 2 |
| July 11. | Bridge, | Walkerton, Ont. | July 2 |
| July 11. | Ditch, | Tipton, Ind. | July 2 |
| July 11. | Wharf work, | New London, Conn. | July 2 |
| July 11. | Water-works, | Sioux Falls, S. Dak. | Jun. 25 |
| | Advertised, Eng. News, Jun. 25 and July 2. | | |
| July 11. | Building, | Columbia Falls, Mont. | July 9 |
| July 13. | W.-w. & elct l't plants, | Yazoo City, Miss. | Jun. 18 |
| | Advertised, Eng. News, Jun. 18 to July 2. | | |
| July 13. | Bridge, | Brainerd, Minn. | Jun. 18 |
| July 13. | Sewers, | Yazoo City, Miss. | Jun. 18 |
| | Advertised, Eng. News, Jun. 18 and 25. | | |
| July 13. | Bridge, | Ellendale, Wash. | May 28 |
| July 13. | Building, | La Grange, Ga. | May 7 |
| July 13. | Sewers, | Bond Hill, O. | Jun. 25 |
| July 13. | Building, | Farmesville, La. | Jun. 25 |
| July 13. | Bridge, | Chillicothe, O. | Jun. 25 |
| July 13. | Paving, | Barre, Vt. | July 2 |
| | Advertised, Engineering News, July 2. | | |
| July 13. | Paving, | Ashland, Wis. | July 9 |
| July 13. | Paving, | St. Paul, Minn. | July 9 |
| July 13. | Machinery, | San Francisco, Cal. | July 9 |
| July 13. | Sewer extension, | Corvallis, Ore. | July 9 |
| July 13. | Sewer material, | Tonawanda, N. Y. | July 9 |
| July 13. | Building, | North Branch, Minn. | July 9 |
| July 13. | Sewers, | Bond Hill, O. | July 9 |
| | Advertised, Engineering News, July 9. | | |
| July 13. | Sewers, | Yazoo City, Miss. | July 9 |
| July 13. | Sewers, | Wabash, Ind. | July 9 |
| July 14. | Steel bridge, | Mankato, Minn. | July 9 |
| July 14. | Paving, | New York, N. Y. | July 9 |
| July 14. | Street work, | Vailsburgh, N. J. | July 9 |
| | Advertised, Engineering News, July 9. | | |
| July 14. | Roads, | Willets Point, N. Y. | July 9 |
| July 14. | Street construction, | Louisville, Ky. | July 9 |
| July 14. | Paving, | New York, N. Y. | July 9 |
| July 14. | Paving, | Dayton, O. | July 2 |
| July 14. | Paving, | Fort Totten, N. Y. | July 2 |
| | Advertised, Eng. News, July 2 and 9. | | |
| July 14. | Paving, | Albion, Ind. | July 2 |
| July 14. | Water-works, | Oceanside, Cal. | July 2 |
| July 14. | Electric light plant, | Independence, Wis. | July 2 |
| July 14. | Bridge, | Eureka, Cal. | July 2 |
| July 14. | Bridge work, | Ord, Neb. | July 2 |
| July 14. | Bridges (5), | Ramapo, N. Y. | July 2 |
| | Advertised, Eng. News, July 2 and 9. | | |
| July 14. | Building, | Rapid City, S. Dak. | Jun. 25 |
| July 14. | Building, | Winston, N. C. | Jun. 25 |
| July 14. | Wheel pit, etc., | Niagara Falls, Ont. | Jun. 18 |
| | Advertised, Eng. News, Jun. 18 to July 16. | | |

*Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.*

July 14. Steel shed, (Misc. Cont.), New Orleans, La. Jun. 18
Advertised, Eng. News, Jun. 18 and 25.
July 14. Paving, Dayton, O. ..... Jun. 18
July 15. Brewery, South Bend, Ind. ..... Jun. 18
July 15. Irrigation work, Washington, D. C. ..... Jun. 11
Advertised, Eng. News, Jun. 11 to July 9.
July 15. Water-works, Dallas, Tex. ..... Jun. 18
Advertised, Eng. News, Jun. 18 to July 9.
July 15. Coal plant extension, Washington, D.C. ..... Jun. 4
Advertised, Eng. News, Jun. 4 and 11.
July 15. Buildings, Newberry, Mich. ..... Jun. 25
July 15. Building, Corunna, Mich. ..... Jun. 25
July 15. Sinking well, San Antonio, Tex. ..... Jun. 25
July 15. Paving, Kane, Pa. ..... July 2
July 15. Boiler plant, Delaware, O. ..... July 2
July 15. Water-works, Halstead, Minn. ..... July 2
July 15. Drawbridge, Olympia, Wash. ..... July 2
July 15. Water-works, Bristol, Va. ..... July 9
Advertised, Engineering News, July 9.
July 15. Steel bridge, Owen Sound, Ont. ..... July 9
July 15. Levee, Vicksburg, Miss. ..... July 9
July 15. Buildings, Fort Des Moines, Ia. ..... July 9
July 15. Building, New York, N. Y. ..... July 9
July 15. Sewer, Brooklyn, N. Y. ..... July 9
July 15. Sidewalks, Brooklyn, N. Y. ..... July 9
July 16. Building, Boston, Mass. ..... July 9
July 16. Paving, Fayette, Mo. ..... July 9
July 16. Building, Hoboken, N. J. ..... July 2
July 16. Building, Atlanta, Ga. ..... July 2
July 16. Building, Waterbury, Conn. ..... July 2
July 16. Dredging, Norfolk, Va. ..... Jun. 25
Advertised, Eng. News, Jun. 25 and July 2.
July 16. Building, Waterbury, Conn. ..... Jun. 18
Advertised, Eng. News, Jun. 18 and 25.
July 17. Fire boat, Portland, Ore. ..... Jun. 11
July 17. Sewer system, Fort Douglas, Utah ..... July 2
July 17. Fog station, Buffalo, N. Y. ..... July 2
July 17. Building, Irvington, Ind. ..... July 9
July 17. Cement, New London, Conn. ..... July 9
Advertised, Eng. News, July 9 and 16.
July 18. Road, Tolland, Conn. ..... July 9
July 18. Road, Woodbury, Conn. ..... July 9
July 18. Htg and lghtg, Agricultural College, Mich. July 9
Advertised, Engineering News, July 9.
July 18. Road improvement, Celina, O. ..... July 9
July 18. Suction dredges (2), Philadelphia, Pa. ..... July 9
July 18. Retaining wall, Washington, D. C. ..... July 2
July 18. Crane, Washington, D. C. ..... July 2
Advertised, Eng. News, July 2 and 9.
July 18. Water-works, Shinnston, W. Va. ..... July 2
Advertised, Engineering News, July 2.
July 18. Concrete work, Detroit, Mich. ..... Jun. 18
Advertised, Eng. News, Jun. 18-25, July 9-16.
July 19. Electric wiring, Fort Fremont, S. C. ..... July 2
July 20. Sewers, Atlanta, Ga. ..... July 2
July 20. Buildings, Fort McKinley, Me. ..... July 2
July 20. Paving, Houston, Tex. ..... Jun. 25
July 20. Factory, Jonesboro, Ind. ..... July 9
July 20. Steel bridges (4), Peru, Ind. ..... July 9
July 20. Sewers, Atlanta, Ga. ..... July 9
July 20. Heating apparatus, etc., New York, N. Y. July 9
July 20. Paving, Cortland, N. Y. ..... July 9
Advertised, Engineering News, July 9.
July 20. Roads, Greencastle, Ind. ..... July 9
July 20. Road, Princeton, Ind. ..... July 9
July 20. Life saving station, Washington, D. C. ..... July 9
July 20. Paving, West Bay City, Mich. ..... July 9
Advertised, Eng. News, July 9 and 16.
July 21. Bridge, Los Angeles, Cal. ..... July 9
July 21. Sewer, Decatur, Ind. ..... July 9
July 21. Paving, Shawnee, Okla. ..... July 9
July 21. Bridge, Mishafaka, Ind. ..... July 9
July 21. Naval supplies, Washington, D. C. ..... July 9
July 21. Paving, Decatur, Ind. ..... July 9
July 21. Bridge, South Bend, Ind. ..... Jun. 25
July 21. Cement, Charleston, S. C. ..... Jun. 25
Advertised, Eng. News, Jun. 25 to July 23.
July 21. Paving, New Rochelle, N. Y. ..... July 2
Advertised, Eng. News, July 2 and 9.
July 22. Sewer, Amsterdam, N. Y. ..... July 2
Advertised, Engineering News, July 2.
July 22. Steam plant, Grand Rapids, Mich. ..... Jun. 25
Advertised, Eng. News, Jun. 25 to July 23.
July 22. Building, Annapolis, Md. ..... July 9
Advertised, Eng. News, July 9 and 16.
July 22. Paving, Hoboken, N. J. ..... July 9
July 22. Rebuilding bridge, Woonsocket, R. I. ..... July 9
Advertised, Eng. News, July 9 and 16.
July 22. Sewers, Indiana, Pa. ..... July 9
Advertised, Engineering News, July 9.
July 23. Dredging plant, Detroit, Mich. ..... Jun. 25
Advertised, Eng. News, Jun. 25 to July 23.
July 23. Water-works, Yreka, Cal. ..... July 2
July 24. Suction dredge, Los Angeles, Cal. ..... Jun. 25
Advertised, Eng. News, Jun. 25 to July 23.
July 25. Building, Wahpeton, N. Dak. ..... Jun. 25
July 25. Bridge, Washington, D. C. ..... Jun. 18
Advertised, Eng. News, Jun. 18 to July 16.
July 25. Dry-dock, Norfolk, Va. ..... July 9
July 25. Bridge work, Cincinnati, O. ..... July 9
July 25. Water pipe, Yonkers, N. Y. ..... July 9
Advertised, Engineering News, July 9.
July 25. Enlarging reservoir, Yonkers, N. Y. ..... July 9
Advertised, Engineering News, July 9.
July 25. Building, Fargo, N. Dak. ..... July 9
July 25. Sewer pipe, Washington, D. C. ..... July 9
Advertised, Eng. News, July 9 and 16.
July 25. Electric cranes (3), Washington, D. C. ..... July 9
July 27. Water-works, etc., Mt. Airy, N. C. ..... July 9
Advertised, Engineering News, July 9.
July 27. Sewer, Albert Lea, Minn. ..... July 9
Advertised, Engineering News, July 9.
July 27. Iron poles, Washington, D. C. ..... July 9
July 27. Building, Centerville, Ia. ..... Jun. 25
Advertised, Eng. News, Jun. 25 and July 2.
July 28. Sewers, Ridgewood, N. J. ..... July 9
Advertised, Engineering News, July 9.
July 28. Water-works, Wayland, N. Y. ..... July 9
Advertised, Eng. News, July 9 and 16.
July 29. Building, Lawrence, Mass. ..... July 2
July 30. Valves, etc., Mobile, Ala. ..... July 9
Advertised, Eng. News, July 2 to 30.
July 30. Riprap stone, Philadelphia, Pa. ..... July 2
Advertised, Eng. News, July 2 to 30.
July 30. Excavation, Iowa. ..... July 2
Advertised, Eng. News, July 2 and 9.
July 30. Bridges (8), Columbus, O. ..... July 9
July 30. Sewers, Shreveport, La. ..... July 9
July 30. Water system, Fort Barrancas, Fla. ..... July 9
July 30. Water-works, Wellsville, O. ..... July 9
Aug. 1. Dam (Misc.), Ohio River. ..... July 9
Advertised, Eng. News, July 9 to 30.
Aug. 3. Building, Boonville, Ind. ..... July 2
Aug. 3. Lock gates (Misc.), Plaquemine, La. ..... July 9
Advertised, Eng. News, July 9 to 30.
Aug. 3. Bridges (2), Kansas City, Kan. ..... July 9
Advertised, Eng. News, July 9 to 30.
Aug. 4. Sewers, Union S. C. ..... July 2
Advertised, Eng. News, July 2 and 9.
Aug. 4. Water system, Washington, D. C. ..... July 9
Aug. 6. Roads, Boston, Mass. ..... July 9
Advertised, Eng. News, July 9 to 30.
Aug. 8. Fire hydrants, Washington, D. C. ..... Jun. 25
Advertised, Eng. News, Jun. 25 to July 30.
Aug. 11. Building, Portland, Ore. ..... July 2
Advertised, Eng. News, July 2 and 9.
Aug. 12. Building, Little Rock, Ark. ..... Jun. 25
Aug. 12. Water-works, Chinook, Mont. ..... July 9
Aug. 31. Steam boilers, Logansport, Ind. ..... July 2
Advertised, Eng. News, July 2 to 23.
Dec. 15. Railway, Chili (Foreign) ..... Jun. 11
May 2, '04. Railway, South Australia, ..... Feb. 5
**No date. Water supply, Horseheads, N. Y. ..... Jun. 11**
**Advertised, Engineering News, June 11.**
No date. Plans sewer system, Cape Girardeau, Mo. . July 2
Advertised, Eng. News, July 2 to 23.
" . Garbage plant, St. Louis, Mo. ..... July 2
Advertised, Engineering News, July 2.

## RAILWAYS.

(For foreign railways, see under "Mexico," and "Foreign Contracts and Export News.")

ARKANSAS, MISSOURI & KANSAS.—Contract for the first 25 miles of this road reported awarded. Line will run from Memphis to Chanute, Kan., a distance of 450 miles.

ATLANTA, KNOXVILLE & NORTHERN.—Surveyors are locating a route between Ellijay and Marietta, Ga., to Knoxville, Tenn. J. T. Aber is Engr. The new survey will mean the saving of numerous cuts and the straightening of the line. John Howe Peyton, Jasper, Ga., is Locating Engr.

BALTIMORE & OHIO.—A detour line along the Monongahela River opposite Fairmount, W. Va., to be known as the Palatine Branch, is to be built. J. M. Graham is Ch. Engr., Baltimore, Md.

BASIN & ELLISTON.—The Seattle & Boston Mining Co., which is behind this road, has secured a right of way for the road through Basin, Mont., and actual work will now begin.

BURNSVILLE & EASTERN.—S. D. Brady, Ch. Engr., Parkersburg, W. Va., writes that the work on this road, 6 miles long, has been suspended indefinitely.

CALIFORNIA.—The council of Santa Cruz has granted a franchise to Irving A. Bachman, Mgr. Standard Portland Cement Co., for a right to build a steam road from Escalon Heights to the Neary cement beds, thence to the water from near Cowell's wharf.

CARDIFF COAL CO.—Howard & Davis, Engrs., Charleston, W Va., informs us that a preliminary location has been made and all the rights of way secured for the 4½ miles of coal-carrying road, but it is not decided when contracts will be let. T. Embleton, Charleston, is Pres.

DENVER, YANKEE HILL & WESTERN.—Henry I. Seeman, Pres. and Gen. Mgr. Yankee Hill Consolidated Mining Co., Denver, Colo., writes us that surveys have been made and most of the right of way secured for this projected road. The contract for the road from Central City to Yankee has been let to R. A. Hall, Yankee, Colo., and grading will soon start. The line will be 40 miles long and will extend from Central City to Yankee and Rowlinsville, connecting with other roads. Mr. McShane of the First Nat. Bank of Central City is Pres.

DOUGLAS & SAVANNAH.—W. W. McDonald, Douglas, Ga., writes us that application is being made for the company's charter. Line will run from Douglas via Hazlehurst, Mt. Vernon and Stillmore.

ERIE.—A contract has been awarded to E. W. Seymour & Son, Corning, N. Y., for constructing new signal towers between Binghamton, N. Y., and Harnellsville.

EUSTIS R. R.—Fletcher Pope, Vice-Pres. and Gen. Mgr., Phillips, Me., writes that a survey is made and the capital secured for building this road, but no contract is let. The line will be 16 miles long, and run from Dallas to Lang, Caplin and Redington. D. W. Brown, Rangeley, Me., is Ch. Engr.

ILLINOIS.—A surveying party is now in the field making a preliminary survey for the proposed road from Dubuque, Ia., to St. Louis, Mo., via Monmouth, Macomb and Beardstown. The road will, if built, mean a cut-off of nearly 100 miles in distance between Rock Island and St. Louis. W. B. Worrall, Davenport, Ia., is in charge of the party.

ILLINOIS CENTRAL.—The damage done to the company's property in Alexander during the recent high water will amount to about $100,000. The track and bed between East Cape and McClure will have to be rebuilt. H. U. Wallace is Ch. Engr., Chicago, Ill.

INTERNATIONAL & GREAT NORTHERN.—An extension of this road will be made from Fort Worth, Tex., to Wagner, Ind Ter., it is reported.

MASONTOWN & NEW SALEM.—Extension from New Salem to Brownsville, Pa., talked of. This road is owned jointly by the B. & O. and the Penn. R. R. The work will be done by the Penn. R. R.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—A surveying corps will be put in this field at once, with W. L. Flynn, Lantana, Tenn., in charge, to extend the Ben Air line from the Scarborough mill place to a point in the direction of Pike. H. McDonald is Ch. Engr., Nashville, Tenn.

NEW MEXICO.—D. C. Dunlop, Vice-Pres. and Ch. Engr., Blend, N. Mex., states that he is now locating lines of this road and that work of securing rights of way will soon commence. It is expected to begin grading by October, and track laying soon thereafter.

NEW ORLEANS TERMINAL CO.—The board of directors of the New Orleans & San Francisco R. R. in New Orleans, La., have decided to spend $15,000,000 in building the terminal in that city. The name of the company was changed to the above. L. A. Berg is Pres.; R. D. Lankford, Vice-Pres., and Farrar, Jones & Kruttschnitt, General Counsel.

NICHOLS & NORTHERN.—M. P. Flinch, Nichols, N. Y., writes us that the surveys are made for this road, some 26 miles long, and the rights of way are being secured. Good progress is being made toward construction. T. M. Fouts is Pres., and C. L. B. Tylee, Ch. Engr., both of Newark, N. Y.

NORTHERN PACIFIC.—An extension of the Monte Cristo road to Coulee City, Douglas county, is believed to be under contemplation.

OREGON & PACIFIC.—T. W. Morgan Draper states that surveys have been made from Grant's Pass to Crescent City, and preliminaries are under way from Crescent City to Coos Bay, and from Crescent City to Eureka. In all about 50 miles of survey is definitely decided upon.

PENNSYLVANIA R. R.—Improvements at Lowellville, Pa., on the Erie & Ashtabula division, are reported to be under consideration. About $500,000 is to be expended

QUEEN & CRESCENT.—W. F. Garrett, Gen. Mgr. Cincinnati Southern, has stated that this company would make improvements to its entire line from Cincinnati to Chattanooga, Tenn., at once by reballasting the road and replacing all the old bridges and trestles with new ones. A new bridge over the Tennessee River at Chattanooga, Tenn., is talked of. G. B. Nicholson is Ch. Engr., Cincinnati, O.

SEABOARD AIR LINE.—The company has located a spur line from a point on the E. & W. of Ala. (now under contruction) near Black Creek, to Trussville, Ala., about 10 miles. A connection with the A. G. S. is made at Trussville. J. W. Bushnell, Ch. Engr. Cons., Cedartown, Ga. This line taps the best coal fields in the state. The Central of Georgia has surveyed a line from Henry-Ellen on their Columbus & Birmingham Div., tapping these same fields, but as yet no demonstration toward construction has been made.

SOUTHERN PACIFIC.—Yard improvements at Marysville, Cal., are talked of.

SOUTH GEORGIA.—J. W. Oglesby, Pres., Quitman, Ga., informs us that matters are arranged so that grading can be commenced and contracts are to be let immediately. About five miles of road will be built. A. B. Thruston, Quitman, is Ch. Engr.

TRANS CANADA.—C. E. Perry, Engr. in Charge of Surveys, 16 Argyle Ave., Ottawa, Ont., writes us that surveys are made as follows: 60 miles in Quebec west from Roberval, 100 miles north end of Lake Winnipeg, and 50 miles from Port Simpson easterly. The capital is assured if the Government aid can be obtained. The road is planned to run from Quebec to Port Simpson on the Pacific Ocean, a distance of 3,000 miles. Geo. Tanguay is Pres.; J. A. Scott, Gen. Mgr., and E. S. Doncet, Ch. Engr., all of Quebec.

UNION SPRINGS & NORTHERN.—Bonds to the amount of $925,000 will be sold to provide for the extension from Fort Davis in Macon county, Ala., to Rockford, a distance of 60 miles. W. M. Blount is Pres., Union Springs, Ala.

WABASH R. R.—Vice-President Landstreet, Baltimore, Md., states that work will begin this week on the Cumberland extension which will fill in the gap separating the Western Maryland and West Virginia Central, about 65 miles. The new road will be double track and will require about 1½ years' time in completion.

### NEW INCORPORATIONS AND CHARTERS.

BIG BLACKFOOT & MIDLAND.—Mont.—Articles filed with $150,000 cap.; to build from Bonner to a point near the Copper Cliff mine in Powell county; est. cost of construction, $150,000. Bonner, Mont., will be the main office. W. W. Morris, Pony, and W. D. Thornton and James W. Forbis, Butte, are directors.

KANSAS CITY, HELENA & BRINKLEY.—Ark.—Chartered with $3,000,000 cap.; to build from Brinkley to Marianna, 27 miles. J. J. Farrell, Brinkley; S. H. Williamson, Pine Bluff, and L. A. Jackson, Brinkley, are incorporators.

MISSISSIPPI & EASTERN.—Miss.—Incorporated to build a line from Quitman to a point on the Southern in Alabama. C. F. Thompson, Chicago, and S. H. Terral, Quitman, Ga., are interested.

MONROE RY. & NAVIGATION CO.—La.—Chartered; line proposed from Monroe to Winnfield, La., 50 miles; to Gilbert, 40 miles; to Bastrop, 22 miles, and possibly beyond. J. P. Parker, L. D. McLain and Jake Simmins are incorporators.

ST. LOUIS, IRON MOUNTAIN & SOUTHERN.—Ill.—Incorporated with $2,500 cap., to build from a point on the Iron Mt. & Southern to the Mississippi River. T. L. Phillips, St. Louis, Mo., and H. L. Browning and W. S. Forman, East St. Louis, Ill., are incorporators.

TENNESSEE WESTERN.—Tenn.—Charter granted; cap. $100,000; will build from Humboldt to Alamo and thence to Dyersburg, 40 miles in length. About $800,000 will be expended in construction. It is the ultimate plan to extend the road to the Mississippi River. W. H. Skevington, James S. Brown and A. Bradley Walker, Nashville, are interested.

## STREET AND ELECTRIC RAILWAYS.

(For foreign street railways, see under "Mexico," and "Foreign Contracts and Export News.")

CARIBOU, ME.—The extension of the Presque Isle & Washburn Electric R. R. to Perham is being sought by the people of that district. The cost of road from Presque Isle to Perham would be about $225,000, including a power plant.

ROCKLAND, ME.—W. B. Getchell, C. E., Augusta, and A. L. Heyward, Bucksport, will go over the route of the proposed street railway between Camden and Belfast. The charter of the Waldo St. Ry. is in the hands of the promoters.

EXETER, N. H.—The Epping, Brentwood & Kingston St. Ry. Co., chartered by the last legislature, has been organized. It will run through the towns named, now without electric service, to Exeter. Early construction is promised. Russell H. Fellows, Brentwood; L. Waldo, Kingston, and John Scammon, Exeter, are directors. Mr. Fellows is Pres.

MANCHESTER, N. H.—We are advised that surveys are in progress on the following electric roads: Manchester & Haverhill, Gaffs Falls, Litchfield & Hudson and Kingston, Brentwood & Epping. Financial arrangements are made for the construction of the first-named and work has started at the Haverhill end. A. A. Collins, South Danville, is Pres.

NEW BEDFORD, MASS.—The Tiverton & Seaconnet St. Ry., which will build from this city to Horse Neck thence through Little Compton and Tiverton to Fall River. A. S. Pennock, Boston; Geo. T. Howard, Little Compton, and Job Wardell, Tiverton, are directors.

WALLINGFORD, CONN.—R. T. Ives writes that surveys are completed and rights of way secured for the line of the Wallingford Tramway Co., and contracts will be awarded within three weeks. The capital is secured. The line will be an electric, 12 miles long, running from this place to North Haven and New Haven.

ALBANY, N. Y.—The Ithaca-Cortland Traction Co. has incorporated to build a street electric railway between those points; cap., $200,000. C. T. Leland, J. P. Archer, Camden, N. J., and E. H. Chandler, Atlantic City, N. J., are directors.

NEW YORK, N. Y.—Work will soon be started and be finished this fall on the new road known as the South Jamaica, Freeport & Mineola Electric R. R. Consents have been secured from the property owners and surveys made. Chas. Ensign, Hempstead, L. I., is Pres. pro tem.

BROOKLYN, N. Y.—The Brooklyn Rapid Transit Co. has authorized the expenditure of $14,000,000 for improvements to be divided up as follows: On the new

***Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.***

Kent Ave. power house, $6,000,000; new tracks, new buildings, etc., $1,296,000; enlargement of other power stations, $3,125,000; improvement of equipment on elevated and surface lines, $1,822,000; construction of underground conduits for the carrying of feed cables, $1,154,000; purchase of real estate, $612,500.

SYRACUSE, N. Y.—Thos. H. Mather, Ch. Engr. Rochester, Syracuse & Eastern Ry., began the construction of that road on July 6.

BUTLER, PA.—The Butler Construction Co. has secured a contract for a new street railway to run between this city and the Standard Steel Co.

HARRISBURG, PA.—The East Harrisburg Passenger Ry. Co. will extend its tracks in various directions.

PITTSBURG, PA.—The Atlantic Ave. St. Ry. Co. has been granted a charter for a new system in this city.—— F. H. McKinney, Pittsburg, is Pres. of the company that will build the new street car line from Haysborough to Curry's Station, 6 miles; cap., $36,000.

POTTSTOWN, PA.—Gov. A. Gillespie, who is superintending the construction of the Pottstown & Reading St. Ry., reports that all contracts are let and the work under way on this road. It will be finished in about three months.

WEST CHESTER, PA.—The West Chester St. Ry. Co. has filed deeds covering the extension to Coatesville for the line through that town and Downingtown to Parkesburg.

MORGANTOWN, W. VA.—Col. J. H. McDermont, Pres. Fairmount, Morgantown & Cheat River St. Ry., states that work will soon commence on the construction of the line from the west end of Suspension bridge to Grandville.

WHEELING, W. VA.—The Wheeling & West Liberty Belt Line Railway has made application for a franchise to the county commissioners.

SANDERSVILLE, GA.—T. B. Holt writes that a right of way has been secured for the electric line from this place to Tennille, 3½ miles, and that a company will soon be organized to build the line. Mr. Holt and J. A. Irwin are the promotors.

LISBON, O.—Work has started on the electric line of the Youngstown & Ohio River Electric Light & Power Co. by the Cleveland Construction Co., with C. S. Bidwell, Piqua, O., in charge.

SALEM, O.—The W. J. McGinty Construction Co., Cleveland, will start work at once on the Stark County Electric R. R. from Sebring to Salem.

SPRINGFIELD, O.—Mr. Alderman of the Great Northern Construction Co., whose headquarters are in this city, has stated that work will probably begin within two weeks on the line of the Columbus, Loudden & Springfield electric road.

TROY, O.—The Springfield, Troy & Piqua R. R. has planned the erection of an alternating current power house, the equipment of which will consist of eight 400-HP. boilers and an engine room equipped with two 2,000-KW. Turbine generator sets.

MANSFIELD, O.—The Mansfield Ry., Light & Power Co. will expend $250,000 in improving the city car lines and the Mansfield-Shelby interurban.

LA PORTE, IND.—The Northern Indiana Traction Co. has been incorporated with $1,000,000 cap. by S. A. Wight, J. C. Devine and Wm. J. Root, Chicago. It will build a line from South Bend via La Porte and Valparaiso to Hammond.

DETROIT, MICH.—Wm. A. Hankims, Ch. Engr., writes us that the track laying on the Detroit & Toledo Shore Line R. R. was resumed at Trenton, Mich., in June and is expected to be completed as far as the connection with the Wabash R. R. at River Range by Aug. 1. This railroad, from Toledo, Ohio, to Detroit, Mich., is being built by W. B. Strang, Majestic Bldg., Detroit. About 30 miles of the road has been completed and partly double tracked and ballasted with stone.

FLINT, MICH.—The Flint & Saginaw Ry. Co. will complete the traction line of the Saginaw Suburban Ry. Co., between this place and Saginaw. The contract for the equipment has been let to the Commercial Ry. Equipment Co.

MOUNT VERNON, ILL.—Isaac Smith, Ch. Engr. Southern Illinois Electric Ry. Co., was recently in this town for the purpose of starting the surveying.

PEORIA, ILL.—The Knight & Johnson Co. have been granted the right to build a street railway through East Peoria.

SPRINGFIELD, ILL.—The Macomb, Mt. Sterling & Beardstown Ry. has incorporated to build 35 miles of main line with a branch line of equal length. W. A. Compton, E. I. Hampton and Geo. V. Chandler, Macomb, are incorporators.

SULLIVAN, ILL.—J. B. Titus, Pres. Springfield, Monesqua, Sullivan & Mattoon R. R., Sullivan, informs us that a survey of the route has been made and rights of way are being secured. The company is now ready to negotiate for the construction capital. The line will be 75 miles long and an electric.

JANESVILLE, WIS.—P. W. Ryan has been awarded a contract for grading the Pecatonica extension of the Rockford and Belvidere lines.

DAVENPORT, IA.—The International Construction Co. of Detroit, Mich., has received the contract for building the Davenport & Suburban Electric Ry., amounting to about $1,400,000. The power house will be located at Buffalo, Ia., at a cost of $223,000.

MARSHALLTOWN, IA.—The Marshalltown Electric St. & Interurban Ry. Co. has been granted a franchise to construct a line of street railway here.

DEADWOOD, S. DAK.—E. L. Wooley, Ch. Engr. Black Hills & Spearfish Valley Electric Ry., informs us that the preliminary location and approximate estimate of the cost of construction have been made and some franchises obtained, including those in Deadwood and Spearfish. The awarding of contracts for construction is undetermined. The line will be about 14 miles long. M. C. Connors is Pres.

JEFFERSON CITY, MO.—The Deering & Southwestern Ry. Co. of Deering has incorporated with $100,000 cap., and proposes to build a line in Dunklin and Pemiscott counties, 10 miles in length. E. A. S. Highland, Ill.; C. T. Bradford, Evanston; James Graham, Deering, are the incorporators.

EL PASO, TEX.—George Pence is promoting an interurban car line down the valley to Ysleta, San Elizario, Belen and the intervening territory.

SPOKANE, WASH.—Right of way secured and surveys made for the 17 miles of electric line of the Spokane Southern Traction Co., from Spokane into the fruit belt of Moran Prairie. Work will commence as soon as $250,000 of bonds now being negotiated in the East are floated. From the terminal of this line the company proposes to run one branch 14 miles to Coeur d'Alene Lake, Idaho, and another 16 miles to the beet sugar factory at Waverly.

BAKER CITY, ORE.—The Bonita Electric Ry. line, from Baker City to Prairie, has been surveyed. When field notes, etc., are completed Major Bonta will leave for the east to consummate his plans for financing the project.

JOHN DAY, ORE.—Gleaver Bros. state that work will commence about the middle of this month on the electric road from this city to Baker City.

FRESNO, CAL.—A. F. Wishon, Mgr. Fresno City Ry. Co., informs us that it is proposed to improve the company's propery this year by replacing the present rails with new ones, rebuilding the roadbed, and electricizing the Einstein and Berry roads. About 6½ miles of road are now in operation. Wm. G. Kerckhoff is Pres., Los Angeles.

SAN FRANCISCO, CAL.—N. C. Ray, Ch. Engr. Yosemite Valley R. R., 808 Hayward Bldg., informs us that surveys are completed and the right of way purchased for this line from Merced to Yosemite Park. The construction capital is practically secured, and contracts will be let shortly. The line will be operated by a third-railway electric system, and be 67 miles long. F. G. Drum is Pres., San Francisco.

SAN FRANCISCO, CAL.—H. W. Griswold, Ch. Engr. Petaluma & Santa Rosa Ry., 120 Sutter St., writes that contracts will be awarded in September for building the line from Santa Rosa to Sebastopol, Forestville and Petaluma, some 40 miles in length. Preliminary surveys are about completed. The company's headquarters are at Petaluma. Thos. Archer, 329 Pine St., San Francisco, is Pres.

## LIGHT, HEAT AND POWER PLANTS.

(For foreign bridge work, see under "Mexico," and "Foreign Contracts and Export News.")

BAR HARBOR, ME.—Bar Harbor & Union River Power Co. will build dam on Union River and will extend light service to Northeast Harbor and Articoli.

WAVERLEY, ME.—William B. Dillon, New York, will erect an electric plant to furnish light and power to the Great Northern Paper Co.'s mills, of which he is president.

EAST TILTON, N. H.—Reports state that the Winnipesaukee Gas & Electric Co. will purchase the lease of the water privilege and will install new power equipment.

PROVIDENCE, R. I.—The Providence Gas Co. will remodel the South Station, Allen's Ave. and Public St. for the manufacture of water gas; all coal gas will hereafter be made at the Globe St. station, in connection with which a new gas holder will be constructed.

KEYPORT, N. J.—The Vandergrift Const. Co., Drexil Bldg., Philadelphia, Pa., is receiving bids for erecting the Jersey Central Traction Co.'s 1-story brick power house, 100 x 100 ft.

BRYN ATHYN, PA.—H. L. Reinhold, Jr., Arch., 1004 Chestnut St., Philadelphia, is preparing plans for a 1-story brick and stone steam heating and electric light plant.

PHILADELPHIA, PA.—Wm. S. Givining, Engr., Philadelphia Rapid Transit Co., is preparing plans for 1-story brick and steel power house at Green and Beach Sts.

REHOBOTH, DEL.—W. C. Lofland has been granted a franchise and will construct an electric light plant and railway. Capital will be $100,000.

BALTIMORE, MD.—City administration said to favor plan for municipal lighting plant.

RICHMOND, VA.—The Corporation Commission has granted a charter to the Merchants' Operative Light & Power Co.; cap., $100,000.

WELCH, W. VA.—We are informed that bids were being received for proposed improvement of Welch Water, Light & Power Co., the estimated cost of which is $15,000, and that a decision had been about reached for purchase of boilers, pumps, engine and generators. D. J. Howell, Mgr., 605 12th St., N. W., Washington, D. C.

MT. AIRY, N. C.—Bids are asked until July 27 for certain supplies and work in connection with the electric lighting, water-works and water power plant to be constructed in this town. J. S. Hadley, Mayor. (See advertising columns.)

COLUMBIA, S. C.—Another electric light company may be formed.

ROCK HILL, S. C.—Catawba Water Power Co., may increase its capital $100,000.

CONYERS, GA.—City electric plant and water-works will be voted on.

DE FUNIAK SPRINGS, FLA.—City electric plant considered.

CLAYTON, ALA.—J. J. Winn, Jr., Cy. Clk., writes us that all bids for putting in electric lights and water plant have been rejected and the letting postponed until July 15.

HUNTSVILLE, ALA.—Stated that Huntsville Electric Railway, Light & Power Co., A. B. Coryell, Supt., will install $25,000 plant.

VICKSBURG, MISS.—Vicksburg Gas Co. has been granted 50-year franchise.

ALEXANDRIA, LA.—D. C. Williams, of Chicago Building & Manufacturing Co., Chicago, Ill., has applied for franchise for plant to manufacture gas from crude oil. It is said that the company also intends to install plants in Monroe and Lake Charles.

KNOXVILLE, TENN.—Knoxville Gas Co., successor to Knoxville Gas Light Co., has been granted franchises.

FINDLAY, O.—Council is considering specifications for city lighting.

HUDSON, O.—Thirty-year franchise for electric light plant granted L. H. Chapin.

WILLIAMSBURG, O.—Village will erect electric plant.

AGRICULTURAL COLLEGE, MICH.—For tunnels and conduits for electric wiring system at the Michigan State Agricultural College see Buildings on Proposal, advertising columns.

MACOMB, ILL.—Twenty-year franchise granted to Macomb Gas & Electric Light Co.

JANESVILLE, WIS.—The Janesville Electric Co. is stated to be preparing to erect power house.

KAUKAUNA, WIS.—The Knox Const. Co. is planning to secure a water power on the Fox River.

GUTHRIE CENTER, IA.—Private electric plant proposed.

MOULTON, IA.—Mayor Ralph M. Davis writes that the Bolton Bros. have just commenced the construction of the $12,000 electric plant. It is to be operated by water and is to have a capacity of eight 1,200-c.p. arcs and 50 50-c.p. incandescent.

LANESBORO, MINN.—Thompson & Hubberstad received the contract for erecting a new electric light power house, which is to take the place of the old one. New machinery will be installed; also new water wheel, flume and connections of steel.

WEEPING WATER, NEB.—The matter of lighting the city is under discussion. C. J. Tenney, Mason City, Ia., is interested.

LAREDO, TEX.—Installing of electric plant at coal mines is contemplated.

MARLIN, TEX.—Prof. T. U. Taylor, State University, Austin, Tex., has been determining amount of power available near here from Brazos River for contemplated electric plant by Capt. J. A. Martin and others.

SAN ANTONIO, TEX.—City lighting plant discussed.

BOULDER, COLO.—Corporation represented by R. W. Norrington, Bay City, Mich., has franchise to lay pipe line and erect power transportation line in this county. Company proposes to erect power plant on Little Boulder Creek.

SANTA FE, N. M.—Reports state that work will soon start in the Capitol Light & Power Co.'s plant on the Pecos River, 14 miles from this place. Prof. J. G. Halapleus is Mgr. The General Electric Co. will probably receive the contract for electrical supplies.

SANTA FE, NEW MEX.—Capitol Light & Power Co. will begin construction of electrical power plant on Pecos River about Aug. 1. J. H. Webster, Denver, Colo., said to be interested.

LAS VEGAS, NEW MEX.—Stated that Las Vegas & Hot Springs Electric Railway Light & Power Co., E. L. Epperson, Mgr., propose to erect lighting plant at cost of $28,840.

BUCKLEY, WASH.—Work will soon start on the White River Power Co.'s plant, which will utilize the water of the White River. O. J. Campbell is Mgr.

NORTH YAKIMA, WASH.—Chas. B. Hurley, Tacoma, Wash., has asked for franchise to build $60,000 gas plant here.

REDDING, CAL.—E. B. Johnson, Mgr. Northern California Electric Co., has stated that the company intends erecting new sub-station at Bully Hill. J. W. Bingham will have charge of the work.

SAN FRANCISCO, CAL.—A new system of conduits for electric wires will be laid in many of the business streets by the San Francisco Electric Protective Co., under the supervision of the Board of Public Works.

SAN FRANCISCO, CAL.—Bids are asked by the board of directors of the Veterans' Home of California, 320 Sansome St., until July 13 for furnishing the following machinery for the new power house at the Veterans' Home, Napa County: Engines, pulleys, shafting, switchboard, belts, pumps, laundry machinery, bathtubs, one swing engine, bed lathe, one drill press, one grinding machine for machine shop and two horizontal boilers. J. F. Sheehan, Secy.

SANTA ANA, CAL.—Reported that Santa Ana Gas Co. will lay 15,000 ft. large mains at a cost of $15,000.

STOCKTON, CAL.—C. R. Tumelty, Cy. Engr., writes that bond issue of $160,000 for municipal electric light plant has not been sold yet. Plant is to be operated by two 480-HP. steam engines and is to have a capacity of 200 100-c.p. arc and 2,000 16-c.p. incandescents. The estimated cost is $163,280.

CLIFTON, ARIZ.—A. F. Johns, Engr., San Francisco, Cal., has been making preliminary surveys for electric plant on Blue River.

FLAGSTAFF, ARIZ.—Electric lighting considered.

PHOENIX, ARIZ.—Work has started on the Fossil Creek Electric Co.'s plant. Two plants will be constructed, one of 2,500 H.P. and the other 3,500 H.P. Six miles of tunnel ditches and flumes will be required; est. cost, $1,000,000. Mrs. I. E. Tutt, Los Angeles, Cal., is interested.

GENESEE, IDAHO.—T. A. Pieplow, La Junta, Colo., is interested in establishing electric plant here.

SALT LAKE CITY, UTAH.—Arthur E. Snow, Secy. Columbus Con. Mining Co., writes us that bids will probably be received about July 10 for erecting power house. Two 6-ft. Pelton water wheels, two 3,000-KW. dynamos, 4,500 ft. 20—22-in. steel water pipe and 4½ miles of line will be required; est. cost, $35,000. R. H. Strickland, Des. Engr.

FREDERICTON, N. B.—City may install electric system.

**BONDS.**—Dickson, Tenn., votes to issue $30,000 of bonds for electric light and water-works system.—Seward, Neb., votes July 15 on $7,000 issue electric light plant construction bonds.

**NEW COMPANIES.**—Somers Electric Co., Somers, Conn.; $50,000; J. M. Sheehan, A. F. Kibbe, S. Rockwell.——Union Electric Carbon Gas Co., St. Paul, Minn.; $200,000; John L. Strauch, W. Foulke, James S. Matchette, Eau Claire, Wis.——Bay City Light & Power Co., Bay City, Tex.; $50,000; I. Marks, Henry Blethen, T. A. Stone.——Grays Harbor Electric Co., Aberdeen, Wash.; $100,000; G. F. Stone, J. D. Grary, J. B. Bridges.——Colorado Power & Irrigation Co., Denver, Colo.; $5,000,000; Albert Sherwin, Leadville, Colo.; J. R. De Remer, Glenwood, Colo.; E. E. Lucas, Glenwood Springs, Colo.——Humboldt Light & Power Co., San Francisco, Cal.; $500,000; Chas. Doe, Eugene Wooden.

## BRIDGES

(For foreign light, heat and power plants, see under "Mexico," and "Foreign Contracts and Export News.")

WELLS RIVER, VT.—The Boston & Maine R. R. is preparing to build a new steel bridge across the Connecticut River between this village and Woodsville, N. H., to replace the present wooden toll bridge.

BOSTON, MASS.—City Engineer Jackson has discarded the three bids received for constructing the spans for the steel superstructure of the Atlantic Ave. bridge across the tracks of the south terminal station, as they did not conform to the specifications. The bids were: American Bridge Co., New York, $170,000; King Bridge Co., Cleveland, O., $158,000; Boston Bridge Works, $151,500.

BOSTON, MASS.—J. R. Worcester, 53 State St., Boston, writes that it will not be determined until fall whether the bridge at Merrymeeting Bay, Me., will be built or not.

PLYMOUTH, MASS.—The county commissioners are planning a new bridge over the North River between Pembroke and Hanover; $5,000 appropriated by State.

*Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.*

PLYMOUTH, MASS.—The county commissioners are planning a new bridge over the North River, between Pembroke and Hanover; appropriation, $5,000.

WOONSOCKET, R. I.—Bids are asked until July 22 for rebuilding the Globe Arch bridge, repairing walls, etc., South Main St. Address Walter F. Fontaine, Chn. Com. on Streets and Bridges. Frank H. Mills, Cy. Engr.

NEW YORK, N. Y.—The Board of Apportionment has appropriated $3,860,000 for the Blackwell's Island bridge and $1,550,000 for the Williamsburg bridge.

NEW YORK, N. Y.—The Manhattan Bridge Commission, composed of five engineers, appointed by Mayor Low to consider the plans of Bridge Commissioner Lindenthal, for the eye-bar cable scheme, has approved of the designs for the cable.

WESTFIELD, N. Y.—A plan is being considered calling for a bridge in this town costing $22,500, to be used jointly by the town and the trolley company.

CAMDEN, N. J.—The bridge committee of the board of freeholders has under consideration the erection of a bridge across Pensauken Creek on the Burlington turnpike.

NEWARK, N. J.—The joint bridge committee, 186 Market St., received the following bids for constructing a steel draw for the Bridge St. bridge, (1) steam draw, asphalt roadway; (2) steam draw, wood roadway; (3) electric draw, asphalt roadway; (4) electric draw, wood roadway: F. R. Long & Co., (1) $55,200, (2) $52,300, (3) $55,000, (4) $52,000; King Bridge Co., (1) $60,000, (2) $59,000, (3) $60,000, (4) $59,000; Berlin Construction Co., (1) $53,900, (2) $53,000, (3) $54,800, (4) $53,100; Canton Bridge Co., (1) $57,000, (2) $54,000, (3) $60,000, (4) $57,000, Sanford-Harris Co., (1) $51,473, (2) $48,472, (3) $51,473, (4) $48,473; Joseph H. Cutley, (1) $60,800, (2) $60,800, (3) $60,550, (4) $60,510.

CHAMBERSBURG, PA.—New bridge over the Falling Spring on North Main St. is considered. Robt. J. Boyd, Upton; B. Hege, Scotland, are viewers.

LONDONGROVE, PA.—D. E. O'Connell, Supervisor, is agitating the construction of a bridge over White Clay Creek, near Baker's Quarries.

MADLEY, PA.—A. B. Cushing, contractor, Bedford, Pa., has secured the contract for erecting a 120-ft. 2-span iron railroad bridge and filling 4,000 ft. of track for the contemplated improvements by the Penn. R. R. About $40,000 is involved.

PITTSBURG, PA.—Three bridge companies have made application to Gov. Pennypecker for charters to build toll bridges across the Ohio River at Osborne, Leetsdale and Sewickley, costing from $200,000 to $250,000 each. They are respectively the Osborne Bridge Co., the Stoops Ferry Bridge Co. and the Crescent Bridge Co. J. H. Craig, Chas. W. Baker and Percy L. Craig are interested.

READING, PA.—The board of public works has decided that a new bridge is needed at Fifth St., and will recommend the erection of a new structure at that point, costing between $7,000 and $12,000.

DOVEL, DEL.—The plans and specifications for the new bridges over the Mispillon River at Milford are reported to have been finished by the engineer in charge of that work, and the matter is now before the Levy Courts of Kent and Sussex counties.

FREDERICK, MD.—The county commisioners have taken steps to repair the damage to bridges and roads during the recent floods. About nine large bridges were swept away.

KNOXVILLE, TENN.—W. T. Garrett, Gen. Mgr. Cincinnati, New Orleans & Texas Pacific Ry., stated that the company will soon rebuild all the bridges between Chattanooga and Cincinnati and that the work has already been started at some places. A new structure will soon be built across the Tennessee River north of the city. The contract had not been let up to June 27.

CINCINNATI, O.—Bids are asked until July 25 for constructing bridges, drains and approaches thereto on Johnson road. Eugene L. Lewis, County Audr.

COLUMBUS, O.—Bids are asked until July 30 for constructing eight bridges in Franklin County. L. E. Jones, County Audr.

BLUFFTON, IND.—Contract let to Indiana Bridge Co. for $2,245 for building the 70-ft. iron bridge over Rock Creek and to Fred. Huffman for a stone arch over Vera Cruz Creek.

INDIANAPOLIS, IND.—The board of works has under consideration the matter of erecting a bridge over Fall Creek on Northwestern Ave. to take the place of the present structure.

INDIANAPOLIS, IND.—The county commissioners have awarded contracts to Moore & Smith as follows: Pike township, $62,100; Little White Liel, $2,100.

MISHALAKA, IND.—Bids are asked by John M. Brown until July 21 for constructing a 375-ft. bridge over St. Joseph River.

NEW ALBANY, IND.—The Indiana Interurban Bridge Co. has filed articles of incorporation with $1,500,000, and will build the bridge to be used by the interurban railways. It will be of cantilever type. The location is not decided upon, but will probably be over the east end of Sand Island. John F. McCulloch, Pres., New Albany Nat. Bank, and Louis Hartman, New Albany, are incorporators.

PERU, IND.—Bids are asked until July 20 for constructing four steel bridges and the repair of one steel bridge. C. W. Macy, County Audr.

TERRE HAUTE, IND.—The Lafayette Engineering Co., which has received the contract for building the new bridge, will let sub-contracts for the substructure. Howe & Starbuck, Engrs.

GRAND RAPIDS, MICH.—L. W. Anderson, Cy. Engr., writes that the contract for the North Park bridge has been let to the New Jersey Bridge Co. for $28,000. The bridge will consist of five 120-ft. spans, with a 20-ft. roadway and 6-ft. sidewalk.

ST. JOSEPH, MICH.—The county court has annulled the contract with J. H. Hartman for the repair of the Platte River bridge, and will relet the work. His bid was $1,600.

MACOMB, ILL.—The board of supervisors will let a contract on July 10 for erecting a steel bridge over the Foster Branch in Lamoine township.

SAGINAW, MICH.—The board of public works has approved the plans for the new Genesee Ave. bridge and sent them to the aldermen. City Engineer Roberts estimated the cost of the bridge at $167,500. The plans call for two lift spans of the Scherzer rolling lift type, 119 ft. in length, with a 90-ft. clear waterway; two girder flanking spans 83 ft. each; two fixed spans 70 ft. each; one fixed span 42½ ft.; west approach 142 ft. long, and the east approach 120 ft.

MILWAUKEE, WIS.—The bridge committee has the bid of the Milwaukee Steel Structural Co. for the new West Water St. bridge under consideration. The amount, $127,000, is considered too high, and new bids may be called.——Supervisor Bell has offered a resolution to the county board calling for the advertising for bids for the new viaduct. Plans and specifications have been prepared by Engineer Steinhagen.

SIOUX CITY, IA.—I. N. Stone, Chn. St. Com., has recommended to the council the construction of a viaduct in Wall across the tracks leading to the stock yards.

DULUTH, MINN.—Specifications for the Duluth Canal bridge, which were drawn up by City Engineer Patton, have been sent out to prospective bidders and bids will be called at once.

MANKATO, MINN.—The county commissioners will receive bids until July 14 for the construction of a steel bridge in section 17, Danville, across the Big Cobb River.

WHEATON, MINN.—Bids are asked by the town board of Lake Valley township until July 15 for constructing an iron bridge across the Mustinka River. Frank Hill, Chn.

CONCORDIA, KAN.—A bill will be introduced at the special session of the legislature empowering the county commissioners to join with the N., K. & G. R. R. in the building of a railroad and wagon bridge over the new channel of the Republican River here.

LAWRENCE, KAN.—The county commissioners have awarded a contract to the Missouri Valley Bridge Co. for a bridge across the Kaw River at Lawrence at $2,760.

TOPEKA, KAN.—The City Ry. Co. will build a steel bridge over the Kansas River; also a new office and club building. The plans for the bridge are by W. L. Stebbins, Chicago. E. W. Wilson is Pres.

TOPEKA, KAN.—Representative Waggener has introduced a bill in the house calling for an appropriation of $1,000,000 for rebuilding all the bridges destroyed and repairing those injured during the recent floods. Similar measures were also introduced by the representatives of the various counties which have suffered during the recent high waters.

HASTINGS, NEB.—The county board has ordered that new bridges be built in Adams County to the amount of $10,000.

OMAHA, NEB.—The county commissioners opened bids on June 27 for constructing wooden and steel bridges for the ensuing year. The following bid: Canton Bridge Co., C. G. Sheeley, Iowa Bridge Co., Campbell, Flagler Co., H. T. Ward, Thomas Welch, Standard Bridge Co. and J. W. Towle.

CHINOOK, MONT.—Contract for bridge over Milk River at Bowes Ford let to O. E. Pappard at $6,474.

MISSOULA, MONT.—A bridge across the river foot of Van Buren St. is talked of; est. cost, about $12,500.

CHILLICOTHE, MO.—A bridge is talked of to span Medicine Creek on the section line between sections 12 and 13, township 57.

KANSAS CITY, MO.—The matter of reconstructing the 10th and 12th Sts. bridges is being considered by the Mayor and councilmen.

KANSAS CITY, KAN.—Bids are asked until Aug. 3 for reconstructing a bridge across the Kansas River at Bonner Springs, Wyandott County, and another near Turner, Kan. Frank M. Holcomb, County Clk., Kansas City. (See advertising columns.)

ST. LOUIS, MO.—The contract between the American Bridge Co. and the Terminal R. R. Association for the structural steel work for the elevated loop from Eads bridge to Union Station has been cancelled because of the city's hesitancy in granting authority to build the structure. Contract called for about 9,000 tons of steel. J. C. Bland, Pittsburg, Pa., is Consult. Engr.

GALVESTON, TEX.—In connection with the building of the proposed interurban line between Houston and Galveston a bridge over the Galveston River will be built. The county will co-operate with the interurban company in its construction in order to add a wagon section to the structure. H. C. Kehm, Consult. Engr., Chicago, is in Houston in the employ of the Debenture Bonding Co. of London, which will float the $1,000,000 bonds to be issued for construction purposes.

DENVER, COLO.—Plans were recently perfected by the Tramway Company for the new steel truss bridge across Cherry Creek at Downing Ave. Bids are probably in by this date.

PUEBLO, COLO.—The county commissioners are considering sites for a bridge over the Arkansas River near the mouth of the St. Charles; appropriation, $7,500.

GARFIELD, WASH.—The county auditor has been instructed to advertise for bids for removing the county bridge across the South Palouse River across the North Palouse River.

OLYMPIA, WASH.—Bids are asked until July 15 for constructing a 120-ft. drawbridge. V. A. Milroy, Cy. Clk.

SPOKANE, WASH.—Council has been petitioned for bridge over river at Astor St.

SPOKANE, WASH.—A movement is under way to secure the construction of a bridge by the government over the river connecting with Fort Wright. For such a structure $100,000 would be necessary.

TACOMA, WASH.—The plans and tracings for the new Puyallup River drawbridge are completed and the city engineer has advertised for bids for constructing.

FERNDALE, CAL.—Bids are asked until July 14 for constructing a highway bridge over Squaw Creek, Humboldt County. W. H. Haw, Clk.

FERNDALE, CAL.—Bids are asked until July 14 for constructing a highway bridge over Squaw Creek. W. H. How, Clk. Supervisors.

LOS ANGELES, CAL.—Bids are asked by the board of supervisors until July 21 for constructing a bridge over Falling Creek of 13 50-ft. spans, concrete foundations. C. G. Keyes, County Clk.

OAKLAND, CAL.—Contract will be let July 20 for constructing a steel and concrete bridge across Dry Creek. Address County Surveyor Prather.

OWEN SOUND, ONT.—Bids are asked until July 1 for erecting a steel bridge over Mill Creek, Sangeen township. R. Smyth Reeve, of Sangeen, Port Elgin.

SOUTH ZORRA, P. O., ONT.—Bids are asked until July 11 for constructing three steel bridges, two of 30-ft. span and one of 20 ft. James Anderson, Clk.

NEW GLASGOW, N. S.—Erection of bridge over East River near present Intercolonial bridge discussed.

## BUILDINGS.

BURLINGTON, VT.—Capt. T. B. Lamoreux, Q.M., received the following bids on June 25, for constructing 19 buildings, etc., on the post of Fort Ethan Allen, as was advertised in Engineering News. The following abbreviations are used: Lts. for lieutenant's quarters, Capts., captains' quarters; F. O., field officers' quarters; Bks., barracks; C. S., cavalry stable; Q. M., quartermaster's storehouse; with a few exceptions all bids are given: Construction—Chas. H. Dodge Construction Co., Boston, 3 Lts., 2 Capts., and 2 F.O., $150,786; 2 Bks., $132,292; Mead & Reynolds, Washington, D. C., 1 F.O $14,375, 2 F.O. $28,500, 1 D. Capts. $24,000, 2 D. Capts. $47,700, 1 D. Lts. $17,300, 3 Lts. $51,600, 1 Cav. Bks. $73,281, 2 Cav. Bks., $146,000, 1 C. S. $19,597, 4 C. S. $77,888, entire construction, $350,000; Chas. King & Co., Boston, 4 C. S. $17,600 each; 1 Q.M. $14,805, 6 months from date; all or none; Buckley Con. Co., Plattsburgh, N.Y., Capts. $20,257, 2 bldgs. $40,200, 1 Lts. $16,318, 3 Lts. $48,010, 1 F.O. $12,693, 2 F.O. $25,100, 1 Bk. $54,458, 2 Bks. $108,800; 4 stables $66,388, 19 bldgs. $314,100; all except stable $248,900; if awarded Bks., storehouse, Lts., F. O. and Capts. quarters, $234,700; heating, 1 Capts. $1,218, 2 Capts. $2,435; 1 Lts. $967, 3 Lts. $2,900, F. O. $663, 2 F. O. $1,324, Bks. $3,772, 2 Bks., $7,543; plumbing—Capts. $1,224, 2 Capts. $2,448, 1 Lts. $1,367, 3 Lts. $4,300; 1 F.O. $715, 2 F. O. $1,430, Bks. $5,000, 2 Bks. $10,000; Chas. E. Currier, Boston, F. O. $12,839 each, 1 Capts. $21,076, Lts. $15,395, total for 7 sets O. quarters $114,018, complete in 10 mos.; Arthur McQuillan, Plattsburgh, N.Y., 2 Bks. $38,400 each, heating $5,345, plumbing $7,640, gas piping $480; electric wiring $640, nothing unless construction; Fitzpatrick & Pennington, Plattsburgh, N.Y., 2 Co. Bks. $55,043 each; Q.M. S. $12,634, workshops $2,302 each; T. B. Robinson, Burlington, Vt., Q.M.S. $14,400, Mag. $1,570; Nichols & Parker, Essex Junction, 1 Q.M. $13,624, 1 workshop $4,366, 2 workshops $8,550, 1 Mag. $1,537; Denniston & Co., Rochester, N.Y.: 2 F.O. $12,000 each, 2 D. Capts. $17,900 each, 3 D. Lts. $14,700 each, 2 D. Cav. Bks. $52,000 each; 4 C. S. $21,400 each, storehouse $13,900, $75,000 of work or nothing; Merrihew & Adams, Plattsburgh, 2 F. Art. shops $6,592, 1 Mag. $2,623; A. B. Murdough, Watertown, N.Y., 1 Bks. $71,000. Heating—Bar & Creelman, Rochester, 2 Bks. $8,926, 2 F. O. $1,340, 2 Capts. $2,432, 3 Lts. $3,160, entire work $15,658; Blake & Williams, New York, 2 F. O. $954 each, 2 Capts. $1,592 each, 3 Lts. $1,120 each, 2 Bks. $5,466 each; Walworth Construction & Supply Co., Boston, all heating $16,393, Bks. $4,417 each, F. O. $760, Capt. $1,335, Lts. $1,123; Vaux & Co., Buffalo, N. Y., 1 Bks. $4,629, 2 Bks. $9,100, 1 F. O. $740, 1 Lts. $1,154, 3 Lts. $3,412, 1 Capts. $1,475, 2 Capts. $2,900, entire $16,500; Harris & Algore, Philadelphia, 2 Bks. $8,075, 2 F.O. $1,456, 2 Capts. $2,668, 3 Lts. $3,120, all or none; Ed. P. Bates, Albany, N. Y., 1 F. O. $763, Capts. $1,481 each, Lts. $1,091, D. Bks. $4,996; A. A. Saborn, Boston, 6 Lts. $500 each, 2 F. O. $600 each, 4 Capts. $575 each, 4 Bks. $1,980 each, 50% or nothing, entire $14,216; A. H. Moulton, Portland, Me., 2 F. O. $621 each, 2 Capts. $1,230 each; 3 Lts. $1,012 each; Cav. Bks. $3,838 each, all $14,007, all officers' quarters, $6,475. Plumbing, Heating and Gas Piping.—G. S. Blodgett Co., Burlington, each D. Bks. plmbg. $5,440, htg. $4,560, g. pipg $140; each Capts. quarters $1,785, $115 and $60, respectively, each Lts. $1,590, $1,035, $50; each F. O. $748, $778, $35; gas pipg S. H. $50, each G. H. $35; plmbg each stable $575; all heating in above deduct $200; all plmbg $200; no gas pipg without htg or plmbg; Thos. E. Costello, Plattsburgh, N. Y., Plmbg north Capts. quarters $1,259, htg. $1,272, gas pipg $74; south Capts. quarters, $1,454, htg. and gas pipg same as above; north F. O. $1,849, $787, $35; south F. O. $919, $798, $35; 3 Lts. (each) $1,364, $1,133, $75; 1 Bks. $6,289, $4,758, $225; each stable, plmbg. $825; Henry E. Weiber, Roundout, N. Y., heating 1 Lts. $1,050, 1 Capts $1,400, 1 Bks. $4,000, 1 F. O. $675; plumbing, 1 Lts. $2,000, 1 Capts. $2,130, 1 Bks. $8,580, 1 F. O. $1,320, 1 stable $777; gas piping, 1 Lts. $90, 1 Capts. $140, 1 Bks. $290, 1 F. O. $00, 1 G. H. $25, all heating and plumbing and gas piping; Burnham & Stevens, Boston, plumbing, 3 Lts. $4,150, 2 Bks. $12,000, 2 Capts. $3,350, 2 F. O. $2,000, 4 stables $2,483, entire plumbing $23,983, all or none; Ed. Joy, Syracuse, N. Y., heating, 2 F. O. $1,732, 2 Capts. $2,910, 3 Lts. $3,696, 2 Bks. $9,686; plumbing, 2 F. O. $2,356, 2 Capts. $4,381, 3 Lts. $4,780; 2 Bks. $12,378, 4 stables $4,275; gas piping, 2 F. O. $230, 2 Capts. $480, 3 Lts. $400, 2 Bks. $640, 2 G. H. $90, all or none; W. N. Tobin, Syracuse, heating, 1 F. O. $809, Capts. $1,569, 2 Lts. $1,259, Bks. $4,999, 1 F. O. $775, Capts. $1,450, Lts. $1,215, Bks. $4,800; plumbing and gas piping, Lts. $2,122, stable $1,277, F. O. $1,476, Capts. $2,477, Bks. $4,095; if 70% reduce, as follows: Lts. $2,075, stables $1,250, F. O. $1,450, Capts. $2,450, Bks. $4,050. Electric Wiring—James Wilkinson & Co., Boston, Capts. $389 each, Lts. $319 each, F. O. $250 each; Bks. $415 each, storehouse $86, G. H. $90 each, total $3,331; Thos. Buyrne, Boston, F. O. $201 each, Capts. $300 each, Lts. $280 each, Bks. $270 each, Storehouse 38, G. H. $35 each, entire wiring, $2,611; Berkshire Electric Co., Pittsfield, Mass., 2 F. O. $380, 2 Capts. $860, 3 Lts. $885, 2 Bks. $1,250, entire work mentioned $3,250; Clark & Mills, F. O. $175 each, Capts. $361 each, Lts. $245 each, Bks. $303 each, G. H. $25 each, storehouse $25, entire wiring, $2,489; Thos. W. Rogers, Washington, D. C., also offered the following bid for erecting complete: 2 Bks. $126,000. Accept following as a whole 2 F. O. $27,000, 2 Capts. $47,000, 3 Lts. $55,000.

BOSTON, MASS.—Bids are asked by the school house commissioners, 120 Boylston St., until July 9 for erecting school building. R. C. Sturgis, Comr.——Bids are asked until July 16 for erecting brick building at Norfolk and Washington Sts., Dorchester. Hugh Montague, Supt. Pub. Bldgs.——The Washington Building Trust, Samuel Wells and R. H. Dana, will erect 8-story fireproof building at 12-18 Bromfield St.

CAMBRIDGE, MASS.—The Aberthaw Const. Co., Boston, received contract for erecting grand stand, 95 × 1,400 ft., at Soldiers' Field, at about $200,000. McKim, Mead & White, Archs.

CENTERVILLE, MASS.—Bids are asked until July 9 for erecting new hose house. Putnam & Cox, Archs., 6 Hancock Place, Boston. T. A. Holmes, Chn. Joint Standing Com.

SPRINGFIELD, MASS.—Bids are asked by the city property committee until July 13 for erecting addition to school house at Indian Orchard. N. L. Byron is interested. E. C. & G. C. Gardner, Archs., 33 Lyman St.

NEWPORT, R. I.—Julius Cahn, New York, and W. B. Cross, Boston, will erect a theatre on Broadway, with seating capacity of 1,600.

TORRINGTON, CONN.—The contract for the new post office building will probably be let next winter.

ALBANY, N. Y.—The new first precinct police station at Broad and Arch Sts. will be 41 × 61 ft., and of brick and stone. Bids will soon be asked.

BUFFALO, N. Y.—G. W. Carter & Sons received contract for rebuilding the Keystone Warehouse Co.'s 6-story brick and steel fireproof warehouse, 140 × 230 ft., on Seneca St.

***Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.***

MOUNT VERNON, N. Y.—Jas. A. Bailey will erect a $100,000 residence. Plans being prepared.

NEW YORK, N. Y.—Plans have been filed for addition to the Atlantic Mutual Ins. Co.'s building; $460,000. By W. H. Birkmire, Arch., 396 Broadway, for 6-story brick lofts, 68 x 84 ft., at 133-137 East 16th St., for Inter-River Realty Co., 38 Park Row; $85,000. By A. E. Badt, Arch., 1 Union Sq., for 6-story brick flat, 25 x 90 ft., at Willett and Rivington Sts., for A. Silvermintz, 44 Pike St.; $45,-500. By Ward & Gottlich, Archs., 156 Fifth Ave., for 7-story brick storage building, 20 x 90 ft., at 129 West 41st St., for C. C. Shayne, 124 West 42d St.; $100,000. By G. F. Pelham, Arch., 503 Fifth Ave., for two 6-story brick flats, 60 x 85 ft., at 107th St., for R. M. Silvermintz, 352 West 118th St.; $150,000. By D. Stone, Arch., 20 Bible House, for two 6-story brick tenements, 37 x 80 ft. and irregular, at 324-30 East Ninth St., for M. Dorf, 87 Seventh Ave.; $65,000. By J. A. Ansler, Arch., 875 Washington Ave., for two 5-story brick flats, 40 x 87 ft., at 159-61 Ridge St., for Sobel & Co., 68 Edgecombe Ave.; $100,000. By J. Kastner, Arch., 1133 Broadway, for 5-story refrigerating building, 85 x 201 ft., at Second Ave. and 92d and 93d Sts., for G. Ehret, 1197 Park Ave.; $400,000. By A. E. Badt, Arch., for 6-story brick flat, 50 x 87 ft., at 27-9 Goerck St., for S. Greenstein, 432 East 21st St.; $60,000. By C. W. Eidlitz, Arch., 1123 Broadway, for 23-story brick office building, 58 x 143 ft., at Broadway and 42d St., for New York Times Building Co., 41 Park Row; $1,500,000. By Neville & Bagge, Archs., 217 West 125th St., for 6-story brick flat, 49 x 86 ft., at Eighth Ave. and 148th St., for Hoffman & Ellender, 24 East 99th St.; $75,000. By G. F. Pelham, Arch., 503 Fifth Ave., for 6-story brick flat, 50 x 77 ft., at Bleecker and Morton Sts., for J. & I. Polstein, 305 East Fifth St.; $56,500. By C. True, Arch., 729 Sixth Ave., for two 3 and 6-story brick lofts with stable, 49 x 83 ft., at 542-6 First Ave., for P. L. Bryan, 358 Ave. A; $60,000. By A. E. Badt, Arch., 1 Union Sq., for 6-story brick flat, 51 x 56 ft., at Avenue C and Second St., for S. Barkin, 123 Bowery; $50,000. By Sass & Smallheiser, Archs., 23 Park Row, for 6-story brick flat, 40 x 79 ft., at 332-4 East 19th St., for A. Califano, 11 West 117th St.; $45,000. By Sass & Smallheiser, Archs., for two 6-story brick flats, 36 x 90 ft., at 207-11 East 15th St., for Pachtmann & Levine, 246 Stockton St., Brooklyn; $90,000. By Bernstein & Bernstein, Archs., for two 6-story brick flats, 40 x 84 ft., at 705-11 East Fifth St., for M. Katzen, 52 Broadway; $120,-000. By Renwick, Aspinwall & Owner, Archs., 367 Fifth Ave., for 4-story brick nurses' home, 35 x 107 ft., at Blackwell's Island, for the city; $65,000. By W. B. Dickenon, Arch., Third Ave. and 149th St., for 2-story store and office building, 134 x 165 ft., at 169th St., for F. Hecht, 2 East 127th St.; $50,000. By J. McGuire, Arch., 45 East 42d St., for 5-story brick hospital, 55 x irregular, at 415-19 West 51st St., for M. A. O'Neill, Allegheny; $70,000. By D'Oench & Yost, Archs., 289 Fourth Ave., for 6-story brick factory with offices, 50 x 93 ft., at 38-40 West 15th St., for F. T. Van Beuren, 21 West 14th St.; $60,000. By Horenburger & Straub, Archs., 122 Bowery, for two 6-story brick flats, 53 x 88 ft., at 431-41 East 80th St., for R. Meryash, 96 Monroe St.; $100,000. By F. M. Wright, Arch., for six 3-story brick dwellings, 55 x 120 ft., at 162d St., for Wm. E. Diller; $60,000.

NEW YORK, N. Y.—Bids are asked by Bellevue and Allied Hospitals Department, 26th St. and First Ave., until July 15, for constructing hospital building at Lenox Ave. and 136th St. J. W. Brennan, Pres. Bd. Trustees.——Borough President Cantor will request an appropriation of $375,000 for erecting new brick and terra cotta flower market building at West, Washington, Canal and Spring Sts. A. W. Bruner, Arch., 33 Union Sq.——Plans have been prepared for new brick and stone police headquarters, 75 x 350 ft., at Centre and Broome Sts.; est. cost, $500,000. F. L. B. Hoppin, Arch., 244 Fifth Ave.——Fire has damaged the 8-story office and factory building at 473-5 Broadway, to the extent of $75,000.

NEW YORK, N. Y.—Bids are asked by department of education, Park Ave. and 59th St., until July 20, for installing electric light wiring, heating and ventilating apparatus, etc., in various schools. C. B. J. Snyder, Supt.

SYRACUSE, N. Y.—Contract will probably be let July 15 for erecting new court house. Archimedes Russell, Arch., 321 The Bastable.

TRENTON, N. J.—An effort has been launched to secure an appropriation from congress of $200,000 for enlargement of the post office building.

DANVILLE, PA.—T. P. Reitmeyer, Arch., Williamsport, will prepare plans for the additions for the State Hospital for the Insane. Filtration and sewerage systems will be installed.; est. cost, $125,000.

GERMANTOWN, PA.—Bids are asked by E. F. Durang, Arch., 1200 Chestnut St., Philadelphia, for erecting 3-story brick and stone parochial school for St. Francis R. C. Church; est. cost, $50,000.

GREENBURG, PA.—We are informed that the contract for erecting new court house will be let July 9.

HAZLETON, PA.—Owen McGlynn, Arch., Wilkesbarre, is preparing plans for new 3-story brick and stone high school building; est. cost, $60,000.

PHILADELPHIA, PA.—Reports state that Lewis Havens & Sons will receive contract for erecting John C. Winston Co.'s 8-story brick and steel semi-fireproof building, 100 x 150 ft., on Arch St.; est. cost, $125,000. Wm. C. Pritchett, Arch., 420 Walnut St.——Bids will soon be asked by the Elks for erecting 3-story brick and stone temple, to cost $60,000.——Thos. Little & Son, 1222 Closer St., received contract for erecting the Central Trust & Savings Co.'s 6-story fireproof bank and office building, at $80,000.

PITTSBURG, PA.—The Diamond National Bank, Fifth Ave. and Union St., will erect 20-story office building at cost of about $1,000,000. J. S. Scully, Bldg. Com.——A permit has been granted for the Metropolitan National Bank's building, at 41st and Butler Sts.; est. cost, $45,000.

SCRANTON, PA.—Owen McGlynn, Arch., Wilkesbarre, will receive bids for 3-story brick and stone semi-fireproof superstructure of St. Ann's Monastery, 130 x 200 ft., and cost $90,000.

STATE COLLEGE, PA.—G. F. Payne & Co. received contract for 3-story fireproof agricultural building, 60 x 115 ft., for the Penn. State College, at $100,000.

ANNAPOLIS, MD.—Plans will soon be prepared for new 3-story stone hospital building at the Naval Academy; est. cost, $225,000. Surgeon Gen. Rixey, Navy Dept., Washington, D. C.

ANNAPOLIS, MD.—Bids are asked until July 22 for erecting the officers' quarters at the U. S. Naval Academy; available, $280,000. H. C. Taylor, Ch. Bureau Navigation, Navy Dept., Washington, D. C. (See advertising columns.)

BALTIMORE, MD.—Ellicott & Emmart, Archs., Union Trust Bldg., are preparing plans for 3-story brick and stone school, 75 x 150 ft., for the Arundel School Co.

BALTIMORE, MD.—A new $1,000,000 jail being discussed. Jail Warden Doyle interested.

WASHINGTON, D. C.—Marsh & Peter, Archs., 520 13th St., are receiving bids for 4-story stone residence for R. D. Jewett, at Conn. Ave. and S St.; est. cost, $60,000.——Competitive plans will be asked for the Freeman's Hospital stone building at Fifth and Pomeroy Sts. Cost will be about $300,000.——Wood, Donn & Deming, Archs., 808 17th St., are preparing plans for 4-story brick and stone addition to the Alibi Club, 1206 I St.

ALEXANDRIA, VA.—Wm. P. Lipscomb & Co., 1405 F St., received contract for 3-story fireproof post office, custom house, etc., 32 x 62 ft., at $52,970.

RICHMOND, VA.—An 8-story fireproof brick and limestone bank and office building will be erected by the American National Bank at Main and 10th Sts., and cost about $160,000.——Competitive plans will soon be asked for new post office and court house, to cost $1,000,000.

WHEELING, VA.—J. R. Wilson received contract for erecting high school building at Harper's Ferry, at $48,876, excluding heating.

DANBURY, N. C.—I. M. Gordon, Register, writes us that contract will be let July 16 for erecting new court house and jail, to cost from $12,000 to $18,000 and $5,000 to $8,000 respectively.

ATLANTA, GA.—G. W. Stewart, Arch., Empire Bldg., is preparing plans for the new Home for Incurables.

FITZGERALD, GA.—J. F. Hanson will erect building.

SAVANNAH, GA.—H. W. Witcover, Arch., writes us that the contract for erecting 4-story brick, granite, marble and terra cotta fireproof city hall building, 82 x 90 ft., will probably be let October 15; est. cost, $150,000.

DECATUR, ALA.—A new Carnegie Library will be erected.

GULFPORT, LA.—S. H. Floyd, Laurel, and R. S. Simpson, Meridian, will erect building, 90 x 290 ft., at 13th St. and 28th Ave.

CHATTANOOGA, TENN.—The old Shipp property and the Auditorium Hotel, on East Ninth St., will be converted into an office building. Capt. H. S. Chamberlain is interested.——An additional $100,000 has been appropriated for work on the army post.

SEWANEE, TENN.—Additions will be made to the Alpha Tau Omega fraternity chapter house. Rev. A. R. Gray is interested.

FRANKFORT, KY.—A new state capitol is being discussed.

CLEVELAND, O.—The Norcross Co. received contract for the marble work for the new Union Club building; est. cost, $310,000.

COLUMBUS, O.—We are informed that F. L. Packard, Arch., may prepare plans for the Columbus Savings & Trust Co.'s 12-story brick and stone building, 62 x 187 ft.; est. cost, $700,000.

DENISON, O.—John H. Sparks, St. Joseph, Mo., received contract for erecting new court house, at $74,740.

WELLSVILLE, O.—See Water-Works for building for pumping station; also Proposal, advertising columns.

BLUFFTON, IND.—Chas. D. Lacour is planning to build an opera house. Geo. Gauresey, Arch., Chicago, has prepared plans.

BLOOMINGTON, IND.—Plans being prepared for the Indiana University's Students' Building and Girls' Gymnasium, with kitchen, dining and reception room; est. cost is $70,000. Vonegut & Bohn, Archs., Indianapolis.

LAFAYETTE, IND.—Wm. A. Pope, Chicago, Ill., received contract for installing heating plant at the State Soldiers' Home, at $34,680.

IRVINGTON, IND.—Bids are asked until July 17 for erecting eight-room school building. J. E. Cleland, Dir. School Bd., Indianapolis; H. W. Foltz, Arch., Ingalls Blk., Indianapolis.

MARION, IND.—John R. Page, Alexandria, will erect coliseum. Bids will soon be asked.

NEW CASTLE, IND.—The Pan-Handle and the L. E. & W. Ry. Cos. will erect new union station. Bids will soon be asked.

RICHMOND, IND.—Plans being prepared for new fireproof library building for the Earlham College; Earlham Hall and dormitory building will be improved.

VINCENNES, IND.—Site has been purchased for new federal building. Bids will soon be asked. J. J. Lafaulett, U. S. Atty., Indianapolis, is interested.

AGRICULTURAL COLLEGE, MICH.—Bids are asked until July 18 for constructing about 4,000 ft. of tunnels and conduits for a heating and lighting system at the Michigan State Agricultural College. A. M. Brown, Secy. State Bd. Agriculture, Agricultural College. (See advertising columns.)

BAY CITY, MICH.—Daniel A. Marshall, Secy. Masonic Temple Assoc., writes us that Pratt & Koeppe, Archs., are preparing plans for new $50,000 temple.

CHICAGO, ILL.—John Hamilton will erect a 2-story store, office and hall building, 150 x 150 ft., at Lake Ave. and 47th St., at cost of $75,000.——An art museum is to be erected at cost of $3,000,000. J. H. White, Secy. of Com.——Plans have been completed for the 16-story store and office building, 48 x 120 ft., at State and Madison Sts., for J. E. and R. C. Otis. Holabird & Roche, Archs., 1618 Monadnock Bldg.; est. cost, $600,000.

INDIANAPOLIS, IND.—D. H. Burnham & Co., Archs., Chicago, Ill., are taking figures for a 9-story fireproof office and car-storage building, 200 x 243 ft., for the Terminal & Traction Co.

MOLINE, ILL.—Ralph Modjeska, Engr., will prepare plans for the new arsenal storehouse; $150,000 is available.

PEORIA, ILL.—New county jail recommended.

SPRINGFIELD, ILL.—A $50,000 building will be erected by the Supreme Court of Honor.

MILWAUKEE, WIS.—The plan to form a stock company for the erection of a building on the Caswell Estate site at Grand Ave. and West Water St. is being revived. The building contemplated would cost $500,000.

FORT DES MOINES, IA.—Bids are asked until July 15 for constructing various buildings, including plumbing, heating, gas-piping and electric wiring. Maj. R. B. Turner, Q. M.

DES MOINES, IA.—L. H. Kurtz received contract for furnishing power-house equipment, except boilers, electric wiring, switchboard, elevators, heating and ventilating, at the State House, at $73,306. Aultman-Taylor Co. received contract for four 151-HP. boilers at $7,082.

MARSHALLTOWN, IA.—A syndicate is being formed to erect a $50,000 store and office building on the site of the Tremont Hotel.

NORTH BRANCH, MINN.—Bids are asked by county commissioners until July 13 for erecting new Poor House, including heating and plumbing. J. A. Rystrom, Chn. Bldg. Com. J. W. Stevens, Arch., Drake Block, St. Paul.

SOUTH OMAHA, NEB.—W. S. King writes us that $100,000 will be issued in bonds for erecting new high school.

FARGO, N. D.—Bids are asked by the trustees State Academy of Science, until July 25, for erecting brick building. W. R. Purdon, Secy., Wahpeton. Schuler Bros., Archs., Wahpeton.

WYNDMERE, N. D.—Bids are asked by board of education until July 10 for erecting brick school house. G. A. Smith, Clk. Schuler Bros., Archs.

COLUMBIA FALLS, MONT.—Bids are asked by board of managers until July 11 for erecting, including plumbing, a building at the Montana Soldiers' Home. Dr. C. B. Miller, Secy., Helena.

GARDNER, MONT.—Bids are being received for erecting jail.

STOCKETT, MONT.—New jail talked of.

ENID, OKLA.—A new court house is being discussed, to cost about $50,000 to $60,000.

ST. LOUIS, MO.—A new market may be erected at cost of $100,000.

BEAUMONT, TEX.—Plans are being prepared for a new $125,000 hotel. Hagerman & Kidd, Crosby House, are interested.

CORSICANA, TEX.—$150,000 will be spent on erecting new court house.

CORPUS CHRISTI, TEX.—Moling Bros., Columbus, O., will erect $150,000 hotel. S. E. Hanniford, Arch.

DALLAS, TEX.—The Dallas Scottish Rite Cathedral Association will erect $50,000 building.

ORANGE, TEX.—L. T. Noyes, Houston, received contract for erecting county jail.

PASO ROBLES, CAL.—A new bath house will be erected for the Paso Robles Hotel at cost of about $50,000. W. A. Junker, Mgr.

SAN FRANCISCO, CAL.—Chas. J. Rousseau, Arch., 916 Market St., writes us that bids are being received for Levison & Zellesbach's 4-story brick apartment house, 61 x 137 ft. Elevator, steam heat and Backus grates will be installed; est. cost, $50,000.——Dr. Henry Meyer will erect brick apartment house on Bush St.——J. Vance, and Goodman & Butcher will erect 8-story brick building on Taylor St.; est. cost, $100,000.

PRESCOTT, ARIZ.—We are advised by the Quartermaster that the following contracts have been let: Fifield & Gallagher, Phoenix, Ariz., construction of one single barracks, one single officers' quarters, one stable and one storehouse, $77,259; J. H. Mulrein, Prescott, plumbing, gas piping and heating of single barracks, plumbing of stable and gas piping of officers' quarters, $6,545; Graeber Bros., Lawrence, Kan., heating and electric wiring of single officers' quarters and electric wiring of single barracks, $2,825.

SALT LAKE CITY, UTAH.—O. K. Lewis, Walker Bldg., writes us that Oliver Hodgson received contract for erecting S. S. Walker's 5-story brick and steel office building, 87 x 202 ft., at $120,000. Two elevators to be purchased and hydraulic pressure installed.——The L. D. S. Hospital will be four stories high, fireproof and cost $100,000.

## WATER SUPPLY AND IRRIGATION.

(For foreign water supply and irrigation, see under "Mexico," and "Foreign Contracts and Export News.")

SANFORD, ME.—Municipal works considered.

HYDE PARK, VT.—Trustees will seek supply and cost of works.

SPRINGFIELD, VT.—Contract has been awarded to E. C. Crosby and M. A. Cooledge of Brattleboro for building $95,000 water-works.

CAMBRIDGS, MASS.—Water board has asked for $11,-000 for water-works construction purposes.

GREAT BARRINGTON, MASS.—Committee will report soon on sources and means for additional water supply. Geo. W. Mellen is Selectman.

MILTON, MASS.—$4,000 voted for extending mains.

NANTUCKET, MASS.—Town has voted an appropriating $5,000 toward a permanent supply for Siasconset.

ROCKFORT, MASS.—Bids will be opened about July 9 or 11 for 1,000 ft. of 12-in. flange pipe to cost $2,500 to $3,500, according to advice received from G. A. Lowe, Water Comr. L. N. Farnum & Co., 53 State St., Boston, Des. Engrs.

SALEM, MASS.—Henry E. Reynolds, Clk. Water Bd., writes us that the Salem and Beverly water boards have voted to appoint engineers to investigate and report on best method of increasing supply.

SOUTH FRAMINGHAM, MASS.—We are informed that there is no prospect of anything being done toward purchase of plant of Framingham Water Co. for two or three years. C. C. Barton is on Water Com.

SPRINGFIELD, MASS.—City will vote on works.

WAKEFIELD, MASS.—Wakefield Water Co. has offered to sell its plant to town for $230,000. Chas. A. Dean is Chn. Water Com.

CANNONSVILLE, N. Y.—Works discussed.

LOCKPORT, N. Y.—Stated that Dr. H. T. Chamberlain, Buffalo, N. Y., has made offer to furnish city with water from Williamsville Springs.

WAYLAND, N. Y.—Bids are asked until July 28 for constructing a system of water-works, as described in our advertising columns. W. H. Deitzel, Pres. Bd. Trustees.

YONKERS, N. Y.—Bids are asked by the board of water commissioners until July 25 for furnishing four lengths of 48-in. pipes of 8,000 lbs. per length of 42 ft., and two 48-in. special castings to weigh about 4,000 lbs. each. Bids will also be opened on that date for enlarging the Grassy Sprain Reservoir Dam. Joseph H. Beall, Pres. (See advertising columns.)

BUTLER, N. J.—Works discussed.

RAHWAY, N. J.—Filtration plant may be put in. Howard B. Bunn is Supt. W.-W.

HARRISBURG, PA.—We are informed by M. B. Cowden, Cy. Engr., that plans are being prepared for the municipal filtration plant.

HOLLIDAYSBURG, PA.—The Pennsylvania R. R. Co. is said to have made proposition to borough to build 100,-000,000-gallon reservoir on Blair River.

PHILADELPHIA, PA.—Intake of Queen Lane reservoir may be changed to do away with chance of water pollution.

RIVERTON, PA.—Works of Riverton Water Co. bought by Col. P. Russ for $30,000.

STEELTON, PA.—City may furnish Enhaut with water. committee, Chas. Houck, member, having been appointed from that borough to confer with Steelton officials.

*Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.*

WILMINGTON, DEL.—The plans for the proposed new water plant as prepared by the U. S. Sand Filtration Co., Indianapolis, Ind., have been adopted by the board of water commissioners. L. K. Davis, Engr., has recommended a steel stack, to cost about $4,000. The reservoir will be covered and will hold about 60,000,000 gallons. The total cost of the plant will be about $600,000.

WASHINGTON, D. C.—Interior Department has set aside nearly 3,000,000 acres in the state of Washington for the Big Bend irrigation project.

WASHINGTON, D. C.—Specifications for the irrigation work known as the Truckee Project, in Truckee and Carson valleys, Nevada, for which bids open on July 15, may be seen at the office of Engineering News, 220 Broadway, New York. This work will call for about 15 miles of canals, with diverting dams, headworks, spillways and tunnels, and the principal items are as follows: Excavation of various classes, approximately, 2,245,000 cu. yds.; concrete, 33,000 cu. yds.; c.-i. gates and girders in place, 220,000 lbs.; steel, 24,000 lbs.; lumber, 108,000 ft. B. M.; tunnels, 400 ft., 900 ft., and 1,400 ft. approximately; one highway bridge complete with concrete piers, etc. E. A. Hitchcock, Secy. Dept. of the Interior, Washington, should be addressed. (See advertising columns.)

WASHINGTON, D. C.—Bids are asked until Aug. 4 for constructing water system at the Umatilla School, Oregon. W. A. Jones, Comr. Indian Affairs.

BRISTOL, VA.—Bids are asked until July 15 for constructing a masonry dam, reservoir, storm water by-pass, etc. Plans may be seen at office of D. J. Howell, Engr., 605 12th St., N. W., Washington, D. C. H. E. Jones, Chn. (See advertising columns.)

MT. AIRY, N. C.—Bids are asked until July 27 for supplies incidental to the electric lighting, water-works and water power plant to be constructed in this town, as described in our advertising columns. J. A. Hadley, Mayor.

WINNSTON, N. C.—Robt. P. Henry, Cy. Engr., writes that plans are ready for the action of the board for a new water plant to supply 3,000,000 gals. daily; pop., 20,000.

COLUMBIA, S. C.—City may pipe water from Platt Springs, ten miles distant, at a cost of $500,000.

COLUMBIA, S. C.—Municipal works in view.

HAWKINSVILLE, GA.—Arthur Pew writes that surveys are being made for new works to cost $25,000; pop., 2,500. Will be ready for contractors about Aug. 1.

FORT BARRANCAS, FLA.—Bids are asked until July 30 for constructing a water system, pump and boiler house, with machinery and trestle. W. E. Cole, Q. M.

YAZOO CITY, MISS.—See Sewers.

GENEVA, ALA.—Contract let to S. S. Chandler, Albany, Ga., for artesian well and system of water-works, to cost between $12,000 and $14,000. Bonds for same will soon be floated.

CHATTANOOGA, TENN.—Sherman Heights Water Co. will obtain supply for gravity works from Wilder Springs; stand-pipe will be erected.

GULFPORT, TENN.—Plans for a $60,000 water-works have been prepared by W. F. Wilcox, Supt. of the Jackson Water-Works Co.

MAYFIELD, KY.—City said to be considering purchase of local works and electric light plant.

CLEVELAND, O.—State board of health will probably demand installation of filtration plant for city water supply.

DAYTON, O.—Chas. E. Rowe, Supt. Water Dept., writes us that nothing has been done as yet toward pipe extensions for city.

KENNEDY, O.—Village votes $11,000 for water-works.

TOLEDO, OHIO.—We are informed by T. R. Cook, Supt., that plans have been prepared for a 20-in. submerged main. Bids will be asked when right of way is secured.

WELLSVILLE, O.—Bids are asked until July 30 for constructing foundations, tunnel, pump-pit and concrete foundations for new pumping station and for erecting the building. Address Board of Water Trustees. (See advertising columns.)

YOUNGSTOWN, O.—Council committee have reported in favor of a municipal filtering plant and recommend $125,000 bond issue for the work.

GOSHEN, IND.—New well will be put in at water-works plant, to cost $7,256.

PETOSKEY, MICH.—We are informed that nothing definite has been done yet in regard to proposed consolidation of water-works, electric light and water power for the city. John W. Alvord, Chicago, Ill., is Des. Engr.

ALTON, ILL.—City may have municipal works.

ELIZABETH, ILL.—Ordinance passed for works.

ONARGA, ILL.—J. F. Palmer, Mayor, wants estimates for a steel stand-pipe 100 ft. high and 12 ft. in diameter with or without base; new works proposed; pop., 1,200.

BARABOO, WIS.—The city voted on June 30 to issue $85,000 in bonds for a new plant. W. G. Kirchoffer, Consulting Engr., has prepared plans of the source of supply and pumping station.

JUNEAU, WIS.—Bids are asked until July 10 for material aind labor for extensions of city pipe lines. E. F. Justman, Cy. Clk.

SHEBOYGAN, WIS.—Municipal works considered.

SOUTH MILWAUKEE, WIS.—Mayor C. Franke writes us that plans are being made for a 1,300-ft. 18-in. main extension, a new pumping station, and a 1,000,000-gallon pump and boilers; will be ready to call for bids about Aug. 1. Sturtevant & Ford, Chicago, Ill., are Des. Engrs.

HANLEY FALLS, MINN.—Contract awarded to W. Q. Gray & Co., Minneapolis, for constructing water-works at $6,600.

ST. CLOUD, MINN.—Bids are asked until July 13 for $60,000 of water-works 4½% bonds, half maturing in 20 years, half in 30 years. Address Henry J. Limperich, City Clk.

GARDEN CITY, KAN.—We are informed by C. A. Schneider that the $100,000 bond issue was defeated at the recent election. Probably a private company will install pumping plant.

WICHITA, KAN.—Local water company may extend system on College Hill.

HASTINGS, NEB.—The moving of the city water plant and installation of heating plant considered; estimated cost is $38,000.

SPRINGFIELD, NEB.—M. G. Nicholson, Chn. Village Trustees, writes that new plant will cost about $8,000. Election for bonding will take place on July 21, and if bonds are floated bids will be opened as soon as possible. Supply, artesian well; pop., 600.

MARION, S. DAK.—P. H. Drexler writes us that no action has been taken as yet on proposed town water system; population, 500.

DIAMONDVILLE, WYO.—State board has ordered this place and Kemmerer to construct jointly a modern water system.

FORT BENTON, MONT.—City contemplates improving works.

CHINOOK, MONT.—Bids are asked until Aug. 12 for construction of a system of water-works. Mr. F. Marsh, Town Clk.

HAVRE, MONT.—City votes $26,500 bonds for works and sewers; probable that supply of 200,000 gallons will be obtained from driven wells.

HAVRE, MONT.—J. S. Baldwin, Topographical Engr., U. S. Geological Survey, will have charge of St. Mary's Lake Canal project and construction work will probably begin soon. Canal will carry 1,200 cu. ft. per second, will be 438 miles long and will cost $1,175,000.

HELENA, MONT.—The Montana Ditch Co. may construct 25-mile irrigation canal in Missouri River Valley, near Townsend.

TOWNSEND, MONT.—Works may be put in.

GREAT FALLS, MONT.—Installing of meters considered.

CAMERON, MO.—A. M. Young, Mayor, writes us that the plans and specifications for the new works were drawn by Hiram Phillips, St. Louis, and will be constructed under his supervision. Est. cost, $59,000. Distance from reservoir to city limits, 6,700 ft.; elevated tank and direct pressure. Date of opening bids not decided.

KANSAS CITY, MO.—Council has passed ordinance providing $130,000 for immediate repairs to city works.

SULPHUR SPRINGS, TEX.—Works to be improved.

LAWTON, OKLA. T.—City has about $100,000 to put in works and sewers and W. Mathews, U. S. Geological Survey, recommends system of wells as source of supply.

DURANT, I. T.—An election will be held July 25 to vote on bonding for $100,000 to build water-works, sewers and electric light plant.

WALSENBURG, COLO.—T. L. Darby, C. E., Denver, Colo., has reported that city can put in an underflow system of works for $48,065.

ST. JOHNS, ORE.—C. D. Hughes, Chn. Water Com., writes us that the city has awarded the new franchise to J. C. Scott, owner of the old works, and that improvements costing $10,000 will be required.

ORANGE, CAL.—Municipal works considered. Ranson Reid, Santa Ana, Cal., has reported that system can be put in for $25,875.

PASSADENA, CAL.—Municipal works discussed.

SALINAS, CAL.—The Spreckles Co., San Francisco, Cal., is said to contemplate the construction of an irrigation system in the Salinas Valley sugar beet district.

SANTA BARBARA, CAL.—Regarding the city water-works improvements under consideration we are informed that it is proposed to run a tunnel about 18,000 ft. long through the Santa Ynez mountains for a new supply; $200,000 of bonds have been voted and surveys to determine exact tunnel location are now being made. Contracts will not be let for 60 days. J. B. Lippincott, Byrne Bldg., San Francisco, Cal., Des. Engr.

SAUSALITO, CAL.—Cost of water system for this place has been estimated at from $72,000 to $79,500.

WHITTIER, CAL.—City may purchase 2,500,000-gallon auxiliary pump and correspondingly enlarged system.

YREKA, CAL.—Bids are asked until July 23 for materials for constructing water-works. U. F. Brown, City Clerk.

PHOENIX, ARIZ.—A. P. Davis, Principal Engr., U. S. Geological Survey, has been investigating site of Tonta irrigation dam and ditch, the estimated cost of which is $2,890,000, preparatory to calling for bids.

BOISE, IDAHO.—Surveys are said to be under way for proposed irrigating and power canal by State Penitentiary.

GENESEE, IDAHO.—City will vote on bond issue for works. It is proposed to have a stand-pipe, pumping station and about two miles of mains.

HAMILTON, ONT.—Proposed city high-level reservoir will probably be built on day labor plan.

ST. STEPHEN, N. B.—Municipal works considered. F. C. Murchie is Mayor.

SHEDIAC, N. B.—Bids are asked until July 15 for constructing a system of water-works. W. S. Russell, Town Clk.

CALGARY, ALBA.—F. W. Thorold, Cy. Engr., writes that the city will soon call for bids for a steel stand-pipe or water tower with 120,000 imp. gals. capacity. (Canada.)

**BONDS.**—Pensacola, Fla., will vote on $850,000 bond issue for works and sewerage.——Pleasant Ridge, O., by J. B. Hayden, Village Clk., will receive bids until July 21 for $14,500 water-works extension bonds.——Kennedy Heights, O., votes to issue $11,000 water-works bonds.——Youngstown, O., may issue $125,000 bonds for filtration plant.——Anthon, Ia., has voted on issue of $4,500 water-works bonds.——St. Cloud, Minn., will receive bids until July 13 for $60,000 water extension bonds.——Havre, Mont., votes to issue $26,500 of bonds for water-works and sewers.——Great Falls, Mont., will receive bids until July 27 for $141,000 of bonds.——Sulphur Springs, Tex., has issued $19,000 of bonds for water-works improvements.——Antioch, Cal., by R. H. Wall, Town Clk., will receive bids until July 15 for $22,000 water-works bonds.——Genessee, Idaho, will vote on bond issue for works.

**BONDS.**—Stowe, Vt., votes $20,000 water-works construction bonds.——Mechanicsville, N. Y., by N. W. Kelso, Village Clk., will receive bids until June 26 for $22,000 water bonds.——Perth Amboy, N. J., by Garret Brodhead, Cy. Treas., will receive bids until Aug. 7 for $80,000 water bonds.——Rahway, N. J., may issue $30,000 of bonds for filter plant.——Belding, Mich., voted June 27 on issue $35,000 water-works bonds.——Coopersville, Mich., votes $11,500 water-works bonds.——Grand Rapids, Mich., has voted $80,000 of bonds for water main extensions.——Sioux City, Ia., through the city clerk, will receive bids until July 7 for $275,000 water bonds.——Cody, Wyo., votes to issue $50,000 bonds for water-works.——Havre, Mont., votes July 23 on $30,000 bond issue for putting in water-works.——Durant, Ind. Ter., votes to issue $85,000 of bonds for establishing water-works.——Whittier, Cal., may issue bonds for water-works.

**NEW COMPANIES.**—Bernards Water Co., Bernardsville, N. J.; $100,000; Calvin D. Smith, Theron B. Smith, P. C. Henry.——West Rosebud Ditch Co., Absarohee, Mont.; $10,000; John Flanagan, E. B. Thayer, R. C. Howard.——Park Irrigation Co., Ellensburg, Wash.; Dr. J. A. Mahan, Pres.; C. V. Warner, Secy.——Mill Valley Water Co., Mill Valley, Cal.; $500,000; to supply water to Tiburon, Belvedere and Sausalito.——Bear Valley Mutual Water Co., San Bernardino, Cal.; $2,000,000; Thos. W. Frye, Highland; Geo. B. Dunham, A. E. Sterling, Redlands.——Fairview Irrigation Co., Fairview, Idaho; $5,000; David Gilbert, J. Cole.——Matamoras Citizens' Water Co., Westfall, Pa.; $7,000; E. B. Sabar, W. C. Chushe, John Clune, Matamoras, Pa.——The following companies have taken out charters: People's Co., Sadsbury, Pa.; Lower Oxford Water Co., Caln Water Co., Citizens' Water Co., West Sadsbury, Pa. The common directors are Erwin Eyndall, John I. Kyle and H. E. Fanser.——Groveton Water Co., Coroapolis, Pa., $10,000.——Porterville Water Co., Porterville, Cal.; $45,000; Samuel Alexander, Allen Chickering.

## SEWERAGE

ESSEX JUNCTION, VT.—Sewer system being discussed.

HUDSON, MASS.—Sewer construction will entail an expenditure of $100,000.

STONEHAM, MASS.—The sum of $3,700 has been appropriated for sewers in Maple and Market Sts.

SWAMPSCOTT, MASS.—$5,000 appropriated for constructing a box drain at end of Atlantic Ave. culvert.

BATAVIA, N. Y.—City Engineer Holmes has prepared plans for the additions to the sewer system.

BROOKLYN, N. Y.—Bids are asked by the borough president, Municipal Bldg., until July 15, for constructing about 10,415 ft. 12—66-in. brick and pipe sewers and 20 manholes.

LESTERSHIRE, N. Y.—Sewer system being discussed.

TONAWANDA, N. Y.—A. P. Smith, Cy. Engr., writes us that bids are asked until July 13 for furnishing sewer material; $5,000 available.

PATERSON, N. J.—Reports state that Governor Murphy and Attorney General McCarter have decided to authorize the Passaic River district sewerage commission to proceed with the work of constructing a trunk sewer from this place to New York Bay.

RIDGEWOOD, N. J.—Bids are asked by the Board of Village Trustees, C. P. Cronter, Pres., until July 28, instead of July 21, as advertised, for constructing a sewerage system in this village, as described in the Proposal in our advertising columns.

DANVILLE, PA.—A sewer system is being discussed.

INDIANA, PA.—Bids are asked until July 22 for furnishing and constructing 10, 12 and 18-in. pipe sewers, approximately four miles. R. M. Mullen, Engr. in Charge. (See advertising columns.)

READING, PA.—The resolution providing for the construction of a storm water sewer in Schuylkill Ave. has passed.

WASHINGTON, D. C.—Bids are wanted by the District Commissioners until July 25 for furnishing 6-in. D. c.-i. pipe and specials for the sewerage pumping station. (See advertising columns.)

FAIRMONT, VA.—The question of improving the sewer system is being agitated. Engineer Prickett is interested.

ATLANTA, GA.—Bids are asked until July 20 for constructing sewers and furnishing Portland cement; est. cost., $100,000. R. M. Clayton, Cy. Engr.

YAZOO CITY, MISS.—Bids are asked until July 13 for constructing about 11 miles of 8 to 18-in. pipe sewers and furnishing centrifugal pumps and engines; also 12 miles 4 to 12-in. cast-iron pipe for water-works, with accessories. Kirkpatrick & Johnson, Engrs., Jackson.

SHREVEPORT, LA.—Bids are asked until July 30 for constructing about 3,500 ft. 18—72-in. brick and pipe sewers. C. G. Rives, Compt.

NASHVILLE, TENN.—J. E. Le Sueur & Co. received contract for constructing lateral sewer at $2,174.

BOND HILL, O.—Bids are asked until July 13 for constructing sewers in this village, as stated in our advertising columns. A. J. Kiphart, Village Clk. Plans may be seen at the office of Earnshaw & Punshon, Village Engrs., Glen Bldg., Cincinnati; besides in the office of the village clerk.

SPRINGFIELD, O.—A sewer may be constructed in Lagonda Ave.

YOUNGSTOWN, O.—Sewers are being discussed for Vienna Ave. and adjacent streets.

DECATUR, IND.—Bids are asked until July 21 for constructing 10-in. branch sewer to connect with the Marshall St. sewer. D. M. Hower, Cy. Clk.

NORTH VERNON, IND.—Bids are asked by board county commissioners, until July 10 for constructing 6,000 ft. of sewers.

WABASH, IND.—Bids are asked until July 13 for constructing sanitary sewers in six streets, and paving about 9,000 sq. yds. with asphalt on Market St. John Hility, Cy. Engr.

BAY CITY, MICH.—A 36-in. brick sewer may be constructed in Trumbull St.

GRAND RAPIDS, MICH.—Estimates are being prepared for construction of West Side trunk sewer, including embankment and pumping station.

HOUGHTON, MICH.—The following bids have been received for constructing the Shelden St. sewer: Carl Hall & Co., $18,779; Prendergast & Clarkson, $19,043; Geo. R. King, $19,643; Rashleigh Bros., $19,749; J. H. Green & Sons, $17,663 (contract awarded).

GENESEO, ILL.—Sewer system being discussed.

PEORIA, ILL.—Property owners along Adams St. are considering the construction of a private sewer.

ASHLAND, WIS.—See Streets and Roads.

PORTAGE, WIS.—Property owners object to the construction of sewers in the Leach Creek district; est. cost, $15,000.

ALBERT LEA, MINN.—Wm. Barneck, Cy. Engr., writes us that plans are being prepared for 2,000 ft. 36—48-in. brick sewers; est. cost is $14,490.

ALBERT LEA, MINN.—Bids are asked until July 27 for constructing a brick sewer measuring approximately as follows: 450 ft. of 32 × 48-in., egg-shaped, 8 to 15 ft. cut; 1,140 ft. 37 × 55-in., egg-shaped, 8 to 31 ft. deep; 200 ft. 50-in., horseshoe-shaped, 0 to 8 ft. deep. C. E. Brainerd, Cy. Clk. (See advertising columns.)

ST. PAUL, MINN.—Sewers will be constructed in Arkwright, Lawson and Geranium Sts. Bids will soon be asked.

WICHITA, KAN.—Wynkoop Kiersted, Civil Engr., Kansas City, will prepare plans and specifications for storm water sewer.

MILLER, S. DAK.—Sewer system will soon be constructed; also cement walks.

ST. LOUIS, MO.—The sum of $148,000 has been appropriated for construction of sewers.

***Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.***

TRENTON, MO.—Sewer system being discussed. Mayor Wettstein is interested.

NORTH YAKIMA, WASH.—Pettijohn & Daniels received contract for constructing sewer in alley between South 3d and 4th Sts. at $2,210, and J. P. McCaferty for 7th St. trunk line sewer, at $4,637.

CORVALLIS, ORE.—Bids are asked until July 13 for extending sewer system.

BERKELEY, CAL.—Sewers in various streets will be constructed.

FRESNO, CAL.—The resolution providing for the construction of a 6-in. sewer in block 6, Orchard Hill addition, has been passed.

LOS ANGELES, CAL.—Sewers 8 ins. in diameter will be constructed in Fourth and Carondelet Sts. H. J. Lelande is Cy. Clk.——$7,300 appropriated to repair outfall sewer.

OAKLAND, CAL.—John Geary will construct the 8-in. pipe sewer in Broadway. Frank Thompson is Clk.——Sewers will be constructed in various streets.

PASADENA, CAL.—Bids will soon be asked for constructing an 8-in. pipe sewer in Waverly Drive. Herman Dyer is Cy. Clk.——Geo. Bonaz received contract for constructing sewer in Los Robles Ave., at $7,278.

RIVERSIDE, CAL.—Resolution has been passed providing for a sewer, with U branches and manholes, from intersection of 6th and Locust Sts., a distance of 1,120 ft. T. K. Leburn is Supt of Sts.

SACRAMENTO, CAL.—A. Moore received contract for constructing pipe sewer in alley between L and J Sts. M. J. Desmond, is Clk.——A sewer will be constructed in alley between S and T Sts. L. Reeber is Supt. of Sts.

SANTA MONICA, CAL.—M. L. Hostettor received contract for constructing a sewer in Lake St.

**BONDS.**—Marysville, Cal., will issue $64,000 for sanitary sewer system. T. J. Wilhams is Clk.——An election will be held by Sumter, Ore., to vote upon issuing $15,000 in sewer bonds.——Pensacola, Fla., will vote upon issuing $750,000, part of which will be used for sewers.

## GARBAGE DISPOSAL—STREET CLEANING

BUFFALO, N. Y.—Bids are asked until July 17 for cleaning all paved streets for term of five years. F. G. Ward, Comr. Pub. Wks.——Municipal garbage plant is talked of by the council. The plan is to erect four crematories at different points in the city, to cost about $100,000.

TAMPA, FLA.—U. S. Bird, M. D., City Physician, advocates a garbage crematory for this city. The council is now considering a similar proposition.

DAYTON, O.—E. R. Edson, Cleveland, the inventor of the Edson system of garbage disposal, is interesting the council in his method for disposing of the city's garbage. A 3-unit plant would be required. It would cost $60,000, and be capable of disposing of 60 tons of raw material a day.

GLENVILLE, O.—An effort will be made to build a municipal reduction plant in this city. The Newburg Reduction Co. now has the contract at $7,000 per year. R. C. Wright and Chas. Miles are interested.

TOLEDO, O.—The plant to be erected by the Toledo Development Co., which has the contract for the disposal of the garbage of the city, will be four stories high, cost about $125,000, and employ 50 men. The company is a West Virginia corporation; cap., $15,000. H. B. Wood, J. W. Flowers and C. E. B. Lamson are incorporators.

OMAHA, NEB.—City Engineer Rosewater is favoring the adoption of the cremation method of disposing of the city's garbage after the expiration of the present contract on Dec. 31.

## STREETS AND ROADS.

BOSTON, MASS.—Bids are wanted by A. M. Palmer, Depot Q. M., 170 Summer St., Boston, until Aug. 6 for grading and constructing roads and walks at Fort Strong, Long Island, Boston Harbor, Mass. (See advertising columns.)

BROOKLINE, MASS.—Harvard St. will be widened 6 to 10 ft. at cost of about $50,000.

CHELSEA, MASS.—G. N. Oakes received contract for street construction at $7,000.

SPRINGFIELD, MASS.—Wood block pavement being discussed.

WALTHAM, MASS.—$5,200 appropriated for laying out three streets.

BROOKLYN, CONN.—The sum of $4,500 has been appropriated for building public road.

DEEP RIVER, CONN.—The sum of $9,000 will be spent for road improvement.

TOLLAND, CONN.—Bids are asked by board of selectmen until July 18 for graveling and grading 10,624 ft. of road. A. J. McCormick, Selectman.

WOODBURY, CONN.—Bids are asked by board of selectmen until July 18 for constructing about 7,700 ft. of gravel road. Chas. S. Curtiss, Selectman.

BROOKLYN, N. Y.—Bids are wanted by J. E. Swanstrom, Pres. Borough of Brooklyn, Municipal Bldg., until July 15 for constructing about 47,928 sq. ft. of cement concrete sidewalks, about 27,290 ft. of bluestone flagging, and some 2,936 ft. of fencing in this borough.

BROOKLYN, N. Y.—Bids are asked by the borough president, Municipal Bldg., until July 22, for constructing 269,464 sq. yds. pavement, 47,795 sq. ft. cement sidewalks, furnishing 147,798 ft. new curbstones, 45,483 cu. yds. concrete and 540 manhole covers.

CORTLAND, N. Y.—Bids are asked by the board of public works until July 20 for brick and macadam paving amounting to approximately as follows: 7,350 sq. yds. macadam; 4,050 sq. yds. brick; 7,000 lin. ft. stone curb and header; 50 cu. yds. concrete; 1,000 lbs. castiron. S. S. Knox, Pres. (See advertising columns.)

LOCKPORT, N. Y.—South St. will be paved.

NEW YORK, N. Y.—Bids are asked by department of bridges, 13-21 Park Row, until July 14 for sidewalks and asphalt paving under the approaches of the new Williamsburg bridge. Gustav Lindenthal, Comr.

NEW YORK, N. Y.—Bids are asked by Jacob A. Cantor, Pres. Borough of Manhattan, City Hall, until July 14 for repairing and maintaining asphalt pavement on streets in this borough orignally laid by Matthew Taylor and the Matthew Taylor Paving Co., approximately 5,000 sq. yds.

WILLET'S POINT, N. Y.—Bids are asked until July 14 for constructing macadam roads and cement sidewalks at Fort Totten. G. H. McManus, C. Q. M.

HOBOKEN, N. J.—Bids are asked until July 22 for paving Madison St. with Belgian block pavement. Jas. H. Londrigan, Cy. Clk.

OSWEGO, N. J.—West Mohawk St. will be macadamized and West 5th St. paved with brick. Commissioner O'Neil interested.

PERTH AMBOY, N. J.—J. D. Murray, New Brunswick, submitted lowest bid for constructing approach to the new bridge, at $14,061.

VAILSBURGH, N. J.—Bids are asked until July 14 for laying about 33,400 sq. ft. blue-stone flag, 7,500 ft. new curb, etc., as stated in our advertising columns. Andrew R. Fitzsimmons, Borough Clk.

CONNELLSVILLE, PA.—Petitions may be presented for paving various streets.

SHREVEPORT, LA.—The letting of contracts for street paving has been postponed until July 30.

LOUISVILLE KY.—The Barber Asphalt Co. received contract for paving West Broadway from 32d St. to Western Park with asphalt, at about $87,000.

LOUISVILLE, KY.—Bids are asked until July 14 for constructing about 11 new streets; est. cost, $80,000.

ALLIANCE, O.—A petition is in circulation for paving West State St.

BRYAN, O.—Bids are asked until July 9 for constructing about 50,000 sq. yds. brick pavement. Address J. W. Hoke.

CELINA, O.—Bids are asked until July 18 for improving the Evers and Wendel roads. Chas. A. Kloeb, Audtr.

CLEVELAND, O.—Various ordinances have been adopted providing for paving and improving streets. Peter Witt is Cy. Clk.

COLUMBUS GROVE, O.—Two miles of streets will be paved.

CRESTON, O.—Main St. is to be paved.

TOLEDO, O.—A petition is in circulation for repaving Dorr St. Councilman Usher is interested.

BLUFFTON, IND.—David Gottschalk received contract for constructing 5 miles of gravel road at $7,454.

DECATUR, IND.—Bids are asked until July 21 for improving street by paving with crushed stone. D. M. Hower, Clk.

GREENCASTLE, IND.—Bids are asked by Commissioners Putnam County until July 20 for improving about 18 miles stone roads. Peter F. Stoner, Audtr.

PRINCETON, IND.—Bids are asked by board of county commisioners until July 20 for constructing 59 miles 3,530 ft, of macadam road. J. W. Phillips, Bd. Comrs.

WABASH, IND.—See Sewers.

WARSAW, IND.—Bids are asked until July 10 for paving 35,112 sq. yds. with brick, and constructing 12,258 ft. concrete curb. J. V. Godman, Cy. Engr. G. W. Dresser, Cy. Clk.

ALBION, MICH.—Bids are asked until July 14 for paving Superior St. with asphalt, asphalt block, brick and bituminous macadam. A. F. Cooper, Cy. Clk.

MONROE, MICH.—Bids are asked until July 10 for paving West Front St. with brick or paving block. John Steiner, Cy. Clk.

WEST BAY CITY, MICH.—Bids are asked July 20 for paving several streets with brick or sheet asphalt on concrete foundation, approximately 15,000 sq. yds. John M. Roy, Cy. Clk. H. C. Thompson, Cy. Engr.

CHAMPAIGN, ILL.—Washington St. will be paved, petition in circulation for paving Elm St.

CHICAGO, ILL.—An ordinance has been adopted providing for wide tires on vehicles to preserve the pavement.

MOLINE, ILL.—The Barber Asphalt Co. received contract for paving 12th Ave. at $33,512.

PEORIA, ILL.—Reed Ave. and Oak St. will soon be paved; Moss Ave. will be resurfaced.

ASHLAND, WIS.—Bids are asked by board public works until July 13 for 15,000 sq. yds asphalt paving, and July 15 for 1,500 ft. storm sewer.

LA CROSSE, WIS.—Wooley & Hanson received contract for brick paving at $31,345.

MADISON, WIS.—Mills and Mound Sts. will be macadamized at cost of $26,000.

CHASE CITY, IA.—We are informed that the paving of Main St. is contemplated.

COUNCIL BLUFFS, IA.—A road may be constructed across the south end of Lakeview park.

MARSHALLTOWN, IA.—Bids will soon be asked for asphalt and brick paving.

OELWEIN, IA.—Streets may be macadamized.

DULUTH, MINN.—The following bids have been received for paving Superior St.: Asphalt, $40,838; sandstone, $41,378; brick, $35,923; bituminous macadam, $33,353.

DULUTH, MINN.—Paving material discussed. Expert Mitchell, Madison, is interested.

ST. PAUL, MINN.—Bids are asked by board public works until July 13 for paving Pleasant Ave. J. S. Grode, Pres.; R. L. Gorman, Clk.

LINCOLN, NEB.—Paving will soon begin.

GREAT FALLS, MONT.—About 16,000 sq. yds. will be repaved. Brick may be used. D. L. Ellis, Cy. Engr.

FAYETTE, MO.—Bids are asked by board of aldermen until July 16 for brick paving on four blocks. Louis C. Tohon, Cy. Clk.

ST. LOUIS, MO.—Chert may be used in paving the roadways of the World's Fair. William W. Morrison, Engr., is interested.

ST. JOSEPH, MO.—The Amazonia road will be macadamized at cost of $5,500.

SAN ANTONIO, TEX.—Bonds will be issued to the amount of $500,000 for improving roads.

SHAWNEE, OKLA.—Bids are asked until July 21 for paving and otherwise improving 3,338 ft. on Main St. with brick. C. J. Becker, Cy. Clk.

DENVER, COLO.—The following bids have been received for macadam paving in the 18th Ave. district: Gattey & Keith, $70,115; Geddes & Seerie Stone Co., $69,977; Western Realty & Paving Co., $69,688.

PORTLAND, ORE.—W. C. Elliott, Cy. Engr., will prepare plans for asphalt paving on Marshall St.——Several elevated roadways over gulches will be filled.

LOS ANGELES, CAL.—35th Ave. will be improved. M. P. Snyder, Mayor. H. J. Lelande, Cy. Clk.——Plans are on foot for opening Hill St.; est. cost, $25,000.

OAKLAND, CAL.—The proposed boulevard between this place and Haywards will cost about $225,000.——Various streets will be macadamized.

SALT LAKE CITY, UTAH.—South Temple St. will be paved and a stone and concrete retaining wall built; est. cost., $44,000.

WINNIPEG, MAN.—Water St. will be paved with asphalt at cost of about $16,729; other streets will be improved. C. J. Brown is Cy. Clk.

CALGARY, ALBERTA.—F. W. Thorold, Cy. Engr., writes us that bids will soon be asked for constructing concrete sidewalks; est. cost, $18,000.

## MANUFACTURING PLANTS.

TRENTON, N. J.—Pennsylvania R. R. Co. will concentrate its railroad shops now located at Camden, Jersey City, Lambertville and Philadelphia at this place.

CHARLOTTE, N. C.—Stated that Victor Cotton Mill will be sold by order of court Sept. 7. Property consists of 12,672 ring spindles mill, houses and land.

COLBERT, GA.—$50,000 cotton mill to be erected here. J. F. Colbert is interested.

CLIFTON, S. C.—Contract for rebuilding two of the local cotton mills, destroyed by recent flood, let to Thompson & Co., Birmingham, Ala. The cost of the work is estimated at $180,000.

McEWEN, TENN.—Spoke factory to be erected.

GREENFIELD, O.—Sun Manufacturing Co., A. E. Shaner, may erect new plant at Lorain Ave., for manufacture cash registers, etc.

DETROIT, MICH.—Acme Foundry Co., E. J. Woodison, Pres., will build 75 x 75 ft. foundry on Beecher Ave.

LANSING, MICH.—Prouty Locomotive Co. will erect plant for manufacture of gas locomotives.

COLUMBUS, O.—Columbus Screw & Machine Co. will build plant.

LORAIN, O.—City Foundry Co., J. J. Swartz, expects to erect foundry.

TOLEDO, O.—Toledo Foundry & Machine Co., H. W. Koleker, Pres., will erect foundry building and machine shop.

WELLSVILLE, O.—McLain Fire Brick Co., W. H. Connor, Pittsburg, Pa., will erect plant here.

MOUNDSVILLE, W. VA.—Dalsey Mfg. Co., Ashley, Ind., will erect plant here for manufacture of farm implements, steel wheel, etc.

RALEIGH, N. C.—Raleigh Tobacco Co. will erect steam ordering plant and stemmery.

RAVENNA, O.—Plant of Biddle Coach & Hearse Co. stated to have been damaged by recent fire to extent of $250,000.

SOUTH BEND, WASH.—Gilchrist Bros. will add a foundry to their machine shop.

FRESHWATER, CAL.—Excelsior Redwood Co. will erect lumber mill. D. S. Burns, Stillwater, Nev., has been engaged on plans.

GADSDEN, ALA.—Birmingham Boiler Works will locate branch plant here.

JONESBORO, IND.—Stated that bids will be asked until July 20 for erecting factory in this city for Indiana Insulated Wire & Rubber Co.

EVANSVILLE, IND.—Evansville Manufacturing Co., Henry Malz, Pres., will build factory to manufacture piano and organ bodies.

INDIANAPOLIS, IND.—Parry Manufacturing Co. is having plans made for 22 factory buildings to cost about $150,000.

RUSHVILLE, IND.—Smelser Gas Engine Co. will build factory here.

YOUNGSTOWN, O.—Work will soon be started by the Incandescent Light & Chemical Co. on its new $75,000 plant for the manufacture of nitrate of thorium. H. E. White and C. B. White, Philadelphia, are interested.

LAFAYETTE, IND.—The Lafayette Stamping & Enameling Co. has been organized with $50,000 cap., and will at once proceed with the erection of a plant for the manufacture of stamped and enameled goods. V. A. Raiff is Pres.

BUCYRUS, O.—The Pilling-Kruse Air Engine Co. has organized and will soon commence work on a plant. W. H. Picking is Pres.

KALAMAZOO, MICH.—The Michigan Novelty Works are about to increase their capacity and will soon be in the market for new machinery.

BALDWINSVILLE, N. Y.—The Kenyon Paper Co. has decided to rebuild their burned paper mill.

PORT KENNEDY, PA.—S. B. MacDowell, 2144 N. 20th St., Philadelphia, has been awarded a contract for a new plant at this place for the Asbestos Mfg. Co. It consists of four buildings.

PHILADELPHIA, PA.—Smedley & Bros., Church and Tacony Sts., have invited bids for a planning mill at that location, to be two stories, 45 x 100 ft.——Wm. Steele & Sons, 16th and Arch Sts., have posted plans for a warehouse at Third and Sedgely Sts., for the Northeastern Warehousing Co. It will be of brick, five stories high, and 160 x 185 ft.

DANVILLE, PA.—The Colonial Spinning Co., F. G. Hartman, will soon have plans started for an addition to its mill here, to be of brick, one story, 50 x 150 ft. New equipment required.

WEST CHESTER, PA.—The Eastern Telephone Mfg. Co., care W. B. Williford, is having plans prepared for an addition to its factory here, to be of brick, slow-burning construction, and two stories high; new equipment will be needed.

ST. JOSEPH, MO.—The main building of the Hammond Packing Plant was destroyed by fire on July 5; loss, about $1,500,000; covered by insurance.

GRASS VALLEY, CAL.—Local papers say that a mill will be put up at the Pilgrim quartz mine at American Hall. T. A. Patteson, Jr., Mgr.

LOUISIANA, MO.—A company has been organized with $1,500,000 cap., to build a cement plant, and has purchased 1,000 acres of land south of this city. Chas. Harmon, Chicago; J. C. Elston, Crawfordsville, Secy., and R. C. Carpenter, Ithaca, N. Y., Gen. Supt.

VICTORIA, B. C.—It is reported that W. E. Wilson, San Francisco, representing a company with a paid-up capital of $75,000,000, proposes to erect a sawmill near Nanaimo, capable of turning out 300,000 ft. of lumber a day.

MONTESANO, WASH.—W. B. Mack, of the Union Mill Co., states that the company has secured a site between Cosmopolis and Aberdeen and work will begin on the new mill.

ST. LOUIS, MO.—The $60,000 candle plant of the Schaeffer Bros. & Powell Mfg. Co., at Barton and Kosciusko Sts., was destroyed by fire on June 26, at a loss of $60,000; building fully insured.

*Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.*

ABERDEEN, WASH.—The North American Fisheries Co. will reconstruct its plant at once on a large scale.

LEWISTON, IDAHO.—C. W. Nibley is at the head of a company which plans to build a beet sugar plant here. The capital is $1,000,000.

## MISCELLANEOUS CONTRACTS.

IRRIGATION.—For large irrigation project in Nevada, Washington, D. C., see Water-Works.

SMELTER.—Prescott, Ariz.—Canyon Copper Co., J. S. Smith, Supt., may install smelter.

STONE CRUSHER.—Essex Junction, Vt.—Purchase of stone crusher by village voted on July 1.

MINING MACHINERY.—Tombstone, Ariz.—Consolidated Mining Co. will install new machinery.

WHARF EXTENSION.—New Bedford, Mass.—City will issue $30,000 of bonds for extending wharf.

CYANIDE PLANT.—Prescott, Ariz.—Tiger Mining Co., G. Harrington, Mgr., will establish cyanide plant.

LEVEE WORK.—Sacramento, Cal.—Entire levee system may be raised 5 ft. Thos. Fox is Chn. Levee Com.

MINING WORK.—Anaconda, Mont.—Stated that the Reitus Copper Co. will spend $10,000 for equipment.

DAM.—Des Moines, Ia.—Stated that Bonaparte Dam, damaged by recent floods, will be rebuilt with concrete.

HARBOR WORK.—San Pedro, Cal.—Reported that inner harbor here may be dredged as far north as Wilmington.

SMELTER.—Tres Piedras, N. Mex.—Stated that Keystone Milling Co., J. P. Rinker in charge, will erect smelter.

ZINC PLANT.—Chanute, Kan.—Stated that zinc plant will be built here. F. W. Stuecke, Girard, Kan., is interested.

FIRE DEPARTMENT IMPROVEMENT.—Bakersfield, Cal.—May vote on $35,000 bond issue for improving fire department.

RIVER WORK.—Maryville, Mo.—Nodaway and Holt counties will change course of Nodaway River to do away with floods.

CONCENTRATOR, CYANIDE PLANT.—Sumpter, Ore.—100-ton concentrator and cyanide plant at the Goldern Wizard Mine.

SMELTER.—Quartzite, Ariz.—Smelter to be established here. J. A. Rivers, Supt., Success Copper Mining Co., and to be interested.

MINING MILL, SMELTER.—Everett, Wash.—Installation of 500-ton mill and 75-ton smelter at Ethel Mine contemplated. G. A. Pounder is Gen. Mgr.

STAMP MILL.—Boise, Idaho.—Queen's River Consolidated Mining Co., may put in 10-stamp mill. F. J. Conroy said to be interested.

TUNNEL.—Trevorton, Pa.—Contract for driving 2,000 ft. of tunnel at the North Franklin Mine was let to Joseph Osborn, Mt. Carmel, Pa.

OIL PIPE LINE.—Lake Charles, La.—Franchise for the oil pipe line from Jennings to Port Arthur through city, granted to W. H. Rogers.

LIGHT STATION.—Mobile, Ala.—We are informed that no bids were received June 26 for constructing Sabine Bank, Texas Light Station.

LEVEE.—Vicksburg, Miss.—Capt. Chas. S. Bromwell, U. S. Engrs., will let 447,000 cu. yds. of levee work in Warren County on July 15.

OIL PIPE LINE.—Los Angeles, Cal.—Union Oil Co. is having surveys made for oil pipe line between its Lompoc oil fields and tide water.

OIL PIPE LINE.—Beaumont, Tex.—Stated that Texas Co. and Security Oil Co. contemplate building oil pipe line to Sour Lake, 21 miles distant.

PUMPING PLANT.—Deming, N. Mex.—North American Copper Co., T. A. Lister, Pres., will install pumping plant in mines in Shakespeare District.

TUNNELS.—New York, N. Y.—The Interborough Co. has asked for franchise rights for building a tunnel down Broadway from 42d St. to Union Sq.

DREDGES.—Philadelphia, Pa.—Bids are asked until July 18 for constructing two steel, twin-screw, suction dredges. Capt. J. C. Sanford, U. S. Engrs.

HOSE AND CHEMICAL WAGON.—Portland, Ore.—Fire department will purchase a combination hose and chemical wagon. David Campbell is Ch. Engr.

SUBWAY.—Memphis, Tenn.—Contract for town subway for Illinois Central R. R. let to the Giesel Construction Co., St. Louis, Mo. It will cost about $35,000.

PUBLIC BATHS.—New York, N. Y.—Board of estimate apportioned $155,000 for new public baths in Bronx Borough, and $68,000 for new baths in Manhattan Borough.

DREDGING.—Charlotte, Mich.—Battle Creek is to be dredged and this city may possibly construct artificial lake to cost $10,000. R. L. Sowers is County Drain Comr.

TELEPHONE LINE.—Fort Worth, Tex.—Fort Worth Telephone Co. F. B. McElroy, V.-Pres., will construct long-distance line between this city, Hillsboro, and Gainesville.

FERRY.—New York, N. Y.—Delaware, Lackawanna & Western R. R. has franchise for establishing ferry from point between 22d and 23d Sts. to foot of Ferry St., Hoboken.

EMBANKMENT.—St. Louis, Mo.—Appropriation of $50,000 will be asked to build clay embankment round the city water-works at Bissells Point, to protect it from flood damage.

LEVEE WORK.—St. Louis, Mo.—Representatives of levee districts are asking government appropriation of $8,000,000 for improving levees from Cairo to New Orleans.

HOIST, DRILLS, ETC.—Orient, Wash.—Stated that Miner Hill Consolidated Mining Co., W. F. Newton, Mgr., will install hoist, five drills, air compressor, and power drills at Danville.

LOCK GATES.—Plaquemine, La.—Bids are asked until Aug. 3 for constructing lock gates here. Lt. Col. H. M. Adams, U. S. Engrs., Custom House, New Orleans. (See advertising columns.)

DREDGING.—Buckley, Ill.—Local papers state that the contract for dredging the Vermillion River was let to John McAndrews of Bradley. The work amounts to about 250,000 cu. yds.

LIFE SAVING STATION.—Washington, D. C.—Bids are asked until July 20 for constructing a life saving station on Great Wass Island, Me. S. I. Kimball, Gen. Supt., U. S. Life Saving Corps.

STEEL ROAD.—New York, N. Y.—Gen. Roy Stone has been asked to submit a plan for a steel road, for an automobile course, from proposed Blackwell's Island bridge to Montauk Point.

HARBOR IMPROVEMENTS.—Richmond, Va.—W. E. Cutshaw, Cy. Engr., has prepared a plan for improving the harbor and preventing high water from cutting Fulton off from the rest of the city.

TUNNEL.—Chattanooga, Tenn.—It is reported that the Southern Railway Co. will tunnel Lookout Mountain, in order to extend its line from Stevenson, Ala., to this city. The cost is estimated at $5,000,000.

MINING MILL.—Lead, S. Dak.—The Columbus Consolidated Gold Mining Co. has announced that a contract for a 1,000-ton mill to be erected on the property of the company near Lead, will be let in July.

CEMENT.—New London, Conn.—Bids are asked until July 17 for furnishing 10,000 barrels of American Portland cement on dock at Great Gull, Plum or Fisher's Island, N. Y. (See advertising columns.)

CEMENT AND BROKEN STONE.—New York, N. Y.—Bids are asked until July 13 for furnishing 5,000 barrels of Portland cement and sand and broken stone. McDougall Hawks, Comr. Docks, Pier "A."

CANAL.—Newark, N. J.—Newark Board of Trade is advocating the construction of a ship canal to connect the city with the Atlantic. James Owen, County Engr., has estimated the cost at $7,000,000 to $9,000,000.

IRON POLES.—Washington, D. C.—Bids are asked until July 27 for furnishing the Signal Corps with iron poles during the year beginning July 1, in lots of 50 and 100. A. W. Greely, Brig. Gen., Ch. Signal Officer, U. S. A.

GRADE CROSSING ABOLITION.—Newton, Mass.—Plans are reported as likely to be soon consummated for the abolishment of grade crossings on the south side of Newton. The work involves the expenditure of about $670,000.

SHELTER PLANS.—New York, N. Y.—Plans for improvement of Park Circle, 8th Ave., 59th St., and Central Park West, have been approved. They provide for the erection of eight shelter platforms, at an estimated cost of $50,000.

CULVERT.—Boston, Mass.—C. W. Parks, C.E., Charlestown Navy Yard, has been making plans for culvert, to be erected by U. S. Government at a cost of $41,200. It will be about 315 ft. long, 8 ft. in diameter and constructed of concrete and bricks.

VALVES AND SPECIAL IRONS.—Mobile, Ala.—Bids are asked until July 30 for furnishing valves and special irons for Lodes 1, 2 and 3, Warrior and Tombigbee Rivers, Ala. Capt. W. E. Craighill, U. S. Engrs. (See advertising columns.)

DAM.—Ohio River.—Bids are asked by Capt. Wm. L. Sibert, U. S. Engrs., until Aug. 1 for building about 600 ft. of the Chanoine dam, omitting wickets, for navigable pass of Dam No. 3, Ohio River, Glenosborne Station. (See advertising columns.)

MUNICIPAL FERRY.—New York, N. Y.—McDougall Hawkes, Dock Comr., has compiled a report on the Staten Island ferry service. It proposes the municipal ownership of the whole service. The estimated cost of terminals and new boats is $3,250,000.

MONUMENTS, COOLING TOWER.—St. Louis, Mo.—The contract for erecting the Louisiana Purchase Monuments was let to Strehlow & Phelps for $8,000. The contract for three cooling towers for condensing exhaust steam was let to the Barwick Construction Co., for $15,000.

ELECTRIC CRANES.—Washington, D. C.—Bids are asked until July 25 for furnishing and installing three electric traveling cranes of 80,000, 14,000 and 10,000 lbs. capacity at the navy yard, Boston, Mass. M. T. Endicott, Ch. Bureau Yds. and Docks, Navy Dept.

SUCTION DREDGE.—Los Angeles, Cal.—The specifications for the suction dredge, for which bids will be opened by Maj. J. H. Willard, U. S. Engrs., may be seen at the office of Engineering News, 220 Broadway, New York. (See Proposal, advertising columns.)

JETTIES.—New Orleans, La.—Lt. Col. H. M. Adams, U. S. Engrs., received the following bids June 30 for improving the southwest pass of the Mississippi River by constructing two jetties. Christie & Lowe, Chicago, $2,175,879; Chas. Clarke & Co., Galveston, Tex., $2,471,386.

NAVAL SUPPLIES.—Washington, D. C.—Bids are asked until July 21 for supplying the navy yards at Mare Island, Cal., and Puget Sound, Wash., with a quantity of electrical supplies, nuts, bolts, metal, rails, frogs, pipe, pipe fittings, machine tools, etc. A. S. Kenny, Paym. Gen.

DRY DOCK.—Norfolk, Va.—Bids are asked by M. T. Endicott, Ch. Bureau Yds. and Docks, Washington, D. C., until July 25, for constructing a concrete and granite dry dock, exclusive of plumbing plant and caisson, at the Norfolk navy yard. Limit of cost of entire work, $1,200,000.

TUNNEL.—New York, N. Y.—Plans for the new tunnel under North River, franchise for which is asked by Hudson & Manhattan R. R. Co., Wm. G. McAdoo, Pres., provides for two tubes to run from Exchange Place, Jersey City, to New York. The cost of the tunnel is estimated at $7,000,000.

SHIP CANAL.—New Orleans, La.—Plans are being made for enlarging Harvey's Canal into a ship canal 400 ft. or so in width. W. J. Reynolds, of the Reynolds Trust Co., Cleveland, O., is reported to be interested in the project, which also includes the development of Grand Island and erection of hotels.

DRAIN.—Belding, Mich.—F. A. Palmer, Engr., writes that he has completed the survey for 6¼ miles of drain in Ionia County, the contract for the construction of which will be let within 60 days. The upper end of the drain is to be 8 ft. deep and 10 ft. wide at the bottom. Profiles are not yet prepared.

NAVAL SUPPLIES.—Washington, D. C.—Bids are asked until July 14 for furnishing the navy yards, Norfolk, Va.; Boston, Mass.; New York, and Portsmouth, N. H., with a quantity of motors, machine tools, condenser, cranes, power plant, hoisting engine, pumps, winches and valves. A. S. Kenny, Paym. Gen., U. S. N., Navy Dept., Washington.

BELGIAN BLOCKS, DRAIN PIPE, ETC.—New York, N. Y.—Bids are asked by the commissioners of parks, Fifth Ave. and 64th St., until July 16 for furnishing 60,000 Belgian blocks in Crotona Park, The Bronx; 1,550 ft. of 8 to 15-in. stoneware drain pipe; 14,000 cu. yds. sandy loam; 12,000 cu. yds. coarse gravel; building temporary comfort station on the Harlem River Driveway.

ALUMINUM PLANT.—San Antonio, Tex.—D. T. Holt & Co., Soledad Block, San Antonio, writes us that they have a large deposit of aluminate potash, in the crystalized state, free from clay and all foreign substances, in the southwestern part of this state. It is proposed to erect plant for converting this into aluminum and correspondence is desired with manufacturers of this kind of machinery.

DREDGES.—Philadelphia, Pa.—Following bids were received by Capt. J. C. Sanford, U. S. Engrs., for constructing sea-going suction dredge, as was advertised in Engineering News; two dredges are required: William Cramp & Sons Ship & Engine Building Co., Philadelphia, Pa., $410,000, time 15 months; The Harlan & Hollingsworth Co., Wilmington, Del., $323,675, time 9½ months; Maryland Steel Co., Sparrows Point, Md., $304,000, time 13½ months; New York Shipbuilding Co., Camden, N. J., $344,900, one dredge in 13 months and one in 14 months.

MISCELLANEOUS LIGHT-HOUSE DISTRICT SUPPLIES.—Tompkinsville, N. Y.—The following bids were received by the Engineer of the Third Light-House District., on June 24 for miscellaneous articles as required by light-house establishment; advertised in Engineering News: (1) bid for engineers supplies, (2) hardware, (3) iron and steel, (4) lumber, (5) cement, (6) building material, (7) sheet brass, etc., (8) brass castings, (9) sheet iron, tin, etc., (10) iron castings, (11) belting, (12) chimneys: Montgomery & Co., 105 Fulton St., New York (1) $482, (2) $1,268; Jas. Thompson & Son, Stapleton, N. Y., (4) $8,095, (5) $1,200, (6) $452; Manhattan Supply Co., 127 Franklin St., New York, (1) $543, (2) $1,339, (11) $568; Smith, Lyon & Field, 139 Duane St., New York, (2) $1,331; Chas. A. Draper, 120 Liberty St., New York, (11) $176; John R. Stine & Co., 8 Ferry St., New York, (11) $141; N. & G. Taylor Co., Philadelphia, Pa., (9) $5,458; Jefferson Brass Foundry, 209 King St., Brooklyn, N. Y., (8) $2,048; Bruce & Cook, 190 Water St., New York, (9) $5,057; R. W. Geldart, 2 Stone St., N. Y., (1) $501, (2) $1,242, (3) $370, (6) $461, (11) $127; Merchant & Co., 517 Arch St., Philadelphia, (7) $361, (9) $4,980; Jas. Gallagher & Sons, 87 Center St., New York, (8) $1,796; Chas. J. Rainear, 518 Arch St., Philadelphia, Pa., (1) $490; A. W. Swoyer, 17 N. 7th St., Philadelphia, Pa., (3) $381, (7) $930; Gillander & Sons, 135 Oxford S., Philadelphia, (12) $2,125; E. A. Williams & Son, 105 Plymouth St., Jersey City, (8) $1,705; Chas. H. Heinsohn, 284 Avenue A, New York, (4) $7,030; Holyoke Belting Co., 80 Warren St., New York, (11) $148; W. G. Rowell & Co., Bridgeport, Conn., (8) $1,817; Wm. S. Van Clief, Port Richmond, (4) $6,770, (5) $1,190, (6) $406; Watson & Pittinger, 420 Carroll St., Brooklyn, (4) $7,622; Atlas Portland Cement Co., 30 Broad St., New York, (5) $1,075; Jas. L. Steward, Vineland, N. J., (10) $240; U. S. Trading Co., 111 Reade St., New York, (12) $1,860.

## U. S. POSSESSIONS AND CUBA.

WIRELESS TELEGRAPH.—Alaska.—The U. S. Signal Corps will build and equip government wireless stations in Alaska.

MACHINE SHOPS.—Honolulu, H. I.—Congress has appropriated $90,000 for building machine shops at the Pearl Harbor naval station.

ROAD.—Porto Rico.—The Superintendent of Public Works of Porto Rico has called for bids to be opened July 16 for constructing a section of new road 4.6 kilometres in length between Adjurtas and Tallones on the Arecibo-Ponce road, and the unfinished culverts in other sections of the same road. This is the last link for finishing this road of about 80 kilometres long which has been in construction since the American occupation. Most of the work will consist of excavation and masonry and is estimated at about $85,000.

## MEXICO.

OIL.—Chihuahua.—The state government has offered a reward of $10,000 for the first oil well struck in the state.

BUILDING.—Leon.—A large steel and stone business block is to be erected here. Louis C. Long is the architect.

WATER-WORKS.—Durango.—J. F. Fitzgerald, of this city, is back of a project to establish a system of water-works here.

AERIAL TRAMWAYS.—Santa Eulalia, Chihuahua.—Aerial tramways will be put in by the Santa Eulalia Mining Co. at its mines here.

HOTEL.—City of Mexico.—Y. de la Cuesta, proprietor of the Jardin Hotel in this city, is said to be behind a project to erect a large hotel here.

PACKING PLANT.—Guadalajara.—J. Arzapalo, of this city, has applied for government concession to establish and operate meat packing plant here.

FLOUR MILLS.—Parral.—The extensive Madero flour mills at Parral, Coahuila, are to be considerably enlarged. The machinery will be ordered from the United States.

LEVEES.—City of Mexico.—Government has authorized $90,000 for building levees on the Rio Grande, opposite El Paso, Tex. Camilio E. Pani will superintend the work.

PUBLIC IMPROVEMENTS.—Puebla.—$12,000 will be expended by city council in deepening and cleaning channel of San Francisco River and in building a road from Paso Bravo to San Juan.

IRON WORKS.—City of Mexico.—Tula Iron Co., recently organized in the States with $2,500,000 cap., will erect a plant in Mexico. Company's office is at 15 Exchange Pl., Jersey City, N. J.

MINE EQUIPMENT.—El Oro.—The proposed additional equipment for the Dos Estrellas mines in El Oro, state of Mexico, is estimated to cost $350,000, Mex., and will be purchased in the United States.

TRACTION LINES.—San Luis Potosi.—The street railway system here owned by the Tranvias de San Luis Potosi is to be changed from mule to electric transit. There are nearly 14 miles of track.

STOCK YARDS.—City of Mexico.—W. J. Alexander, who has a government concession for building large stock yards here, is in Chicago arranging the details of the enterprise. Stated that $300,000 will be invested.

FACTORY.—San Cristobal, Chiapas.—A. L. Benney, St. Louis, Mo., will establish a large factory for manufacturing rope out of henequin fiber on his plantation in this State. He already has a small-rope-making factory in operation.

RAILWAY.—Culiacan, Sinaloa.—Survey being made for proposed railroad to be built between this city and Topia, in State of Durango. It is said that this road will be built and operated by a concern named the Oriental Construction Co., of New York.

ELECTRIC RAILWAY.—Chihuahua.—Americans owning a government concession for an electric street railway here are said to be arranging for beginning work. Emmet M. Try, Gen. Supt. North American Ry. Construction Co., Chicago, Ill., can possibly give some particulars.

STREET RAILWAY IMPROVEMENT.—City of Mexico.—Reported that the equipment of the Federal District St. Ry. Co. in this city is to be increased. Extensions are also contemplated. Charles Clegg, Gen. Mgr., is now in the States on business connected with these proposed improvements.

MINING.—Rosario.—Theo. B. Comstock, Los Angeles, Cal., has been appointed consulting engineer to the El Carmen Copper Co., New York city, and will leave short-

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ly for Mexico to complete plans for the development of the property at Rosario, Chihuahua. A new 40-stamp mill is now being put up.

ELECTRIC RAILWAY.—Monterey.—J. V. Dignowity, San Antonio, Tex., Gen. Mgr. Mexican Mining & Exploration Co., has stated that that company will immediately take steps towards building an electric interurban railroad between Santa Catalina and Huajuso, via this city, a distance of 28 miles. The power will be obtained from San Juan River, which will be dammed about 20 miles from Monterey.

BUILDINGS, ETC.—A concession for the manufacture of art goods has been granted by the federal government to Col. De Witt Foster and Merritt A. Griffin, who represent a syndicate of capitalists said to be residents of New England. The company will carry on the manufacture of works of art of metals, gold, silver, bronze and crystal. A clause in the concession requires the company to expend $5,000,000 gold on buildings and machinery.

NEW COLONY.—City of Mexico.—The United States & Mexican Trust Co. has lately purchased 350,000 sq. meters of land on the north side of the Raseo de la Reforma, in the city of Mexico, from the Mexican National Construction Co. It is the intention of the trust company to subdivide these lands, at once, and lay out a modern colony, with asphalt walks, cement pavements, drainage and electric lights, at an expense of about $1,000,000.

TELEPHONE LINES, ETC.—City of Mexico.—Compania Telefonica Mexicana has plans for putting its wires underground in this city; automatic signaling switchboard will also be installed. Company has about 2,280 kilometers of telephone lines in operation in the Federal District. Percival G. Burgess is Gen. Mgr.——A project is reported on foot for constructing an electrical generating plant in the State of Vera Cruz to generate something like 100,000 HP. J. H. Vogel, Engr., with an office at 10 Arco San Agustin, this city, can probably give information in regard to the enterprise.——Large factory to be established here by a company of Americans. L. C. Tuckerman & Co., 12 San Francisco St., can probably inform, as they sold the ground for the site.——R. B. McGregor and D. Ward Sutherland, London, Can., are considering establishing a plant here for manufacturing wood working machinery.

RAILWAY.—It is reported that the Pittsburg-San Jose Reduction & R. R. Co. will build several hundred miles of road in western Mexico. Surveys for the extension of the short line of road already completed and are now in for a number of important branches. Plans call for the expenditure of more than $15,000,000. Company is composed of Pittsburg men. John D. Potter, Oil City, is Pres. It is stated that the Mexican International R. R. will extend its road from Durango south to San Blas, a distance of about 200 miles, instead of to the port of Mazatlan as at first proposed. W. S. Martin is Gen. Mgr., city of Porfirio Diaz.——The Mexican Central now has an engineering corps near Casas Grandes to make a reconnoissance between Gallegas and Casas Grandes and westward from Casas Grandes to the timber tract on the Garcia lands. As soon as this work is completed a trip will be made to Nacozari and La Cananea.

POWER DEVELOPMENT.—Tepic.—Alfredo Lonergan, a wealthy mining man of this place, has just returned from the City of Mexico, where he obtained a government concession for establishing a system of electric generating plants and transmission lines. Mr. Lonergan says that a large power plant will be erected at the falls of Tepic. The water has a fall of 130 ft. and with a volume of from 2,000 to 6,000 cu. ft. per second, according to the season. It is proposed to erect a penstock 10 ft. in diameter this year and another of the same size at a later time, and to utilize all the water of the falls when the plans are fully realized. Several hundred miles of transmission lines will be erected. The towns of Tepic, Santiago and San Blas will be reached and lines will also be run to the mining districts of Compostela, Santa Maria del Oro, Yequa and others. It is said that several millions of dollars will be invested in the enterprise, which will be conducted by a syndicate composed of Mr. Lonergan and associates.

## FOREIGN CONTRACTS—EXPORT NEWS.

GAS PLANT.—Paris, France.—The Municipal Council has rejected all propositions to grant concessions for the supply of gas in the city of Paris to Americans, and has decided on a municipal ownership of the works.

RAILWAY.—Honduras.—The new Honduranian congress has validated the concessions granted to the Omoa Co., of Macon, Ga., in 1901, and it is probable the company will commence construction about Jan. 1. The concession covers railways, steamship lines, mining, etc. The preliminary of El Ferro-carril de la Costa Norte was run by the Tennessee Construction Co. in 1901-2.

CANAL LIFT WORKS.—Austria-Hungary.—The Imperial Ministry of Commerce at Vienna will receive competitive plans until March 31, 1904, for a project for lifting-pump works to overcome the fall of 117.8 ft. in the Danube-Oder Canal at Aujezd, Moravia. The purpose is to secure effectual navigation for this canal with a minimum of water. Vessels of 219.8 ft. by 26.9 ft. by 5.9 ft. are to be accommodated. Three prizes are to be offered, amounting to $20,000, $15,000 and $10,000, respectively. If a plan which is accepted be given for construction to a person other than the prize holder, the latter will receive $40,000 additional, provided the works prove successful. Maps showing the proposed location of the project may be seen at the office of Engineering News, 220 Broadway, New York.

RAILWAY AND PUBLIC WORKS.—Austria-Hungary.—A loan of $30,697,500 will be floated for extension of the state railway system, and for the execution of various other works of public utility. Of this amount, about $24,460,000 will be devoted to railways, including the construction of a line from Nagy-berezna to the Galician frontier, doubling of the Galanta-Zsolna line, constructing the Ersekujvar-Komarom line with a bridge over the Danube, completing the Szekelyfold Ry., constructing the Baja-Battaszek line, with bridge over Danube, etc. Among the public works to be included in the loan will be the enlargement of the port of Fiume and constructing new floating docks, constructing and reconstructing bridges on national roads; additions and improvements to the plant of the state iron works; construction of various public buildings, etc.

## CONTRACT PRICES.

[Where (*) precedes items under Contract Prices the work was advertised in Engineering News.]

CAST-IRON WATER PIPE.—Connersville, Ind.—Karl L. Hanson, Cy. Engr., informs us that Frank Ashton, of Connersville, was awarded a contract on June 15, 1903, for furnishing and laying 3,400 ft. of 4-in. cast-iron water pipe, at 66 2-9 cts. per lin. ft., including three 2-way fire hydrants and three gate valves.

*SEA WALL.—Willets Point, N. Y.—Capt. G. H. McManus, Ch. Q. M., received the following bids on June 22 for extending the sea wall at Fort Totten, N. Y.: 19,500 tons of stone, Robt. L. Christie, 103 East 125th St., New York, $1.25 a ton; Smith & Robinson, Maritime Bldg., New York, $1.67.

ASPHALT PAVING.—Louisville, Ky.—The board of public works has awarded a contract to the Barber Asphalt Co., for 6,700 ft. of 50-ft. carriageway on Broadway, at $1.69 and $1.75 a sq. yd.

ASPHALT PAVING.—Detroit, Mich.—For asphalt repairing of certain streets the following bids were received June 22; readvertisement: Toledo Construction & Supply Co., $1.12 per sq. yd. for Venezuelan Lake asphalt; Barber Asphalt Co., $1.21 for Trinidad; James Hanley, $1.25 for Obispo; Trinidad Paving Co., $1.45 for Trinidad.

SEWERS.—Ventura, Cal.—M. E. Isham received a contract for 7,750 ft. of sewer at 47 cts. a ft.

WATER-WORKS.—Berlin, Pa.—Chapin & Knowles, Consulting Engrs., Frick Bldg., Pittsburg, received the following bids on June 27 for construction of the plant of the Berlin Water Co.; contracts awarded in Contract No. 1 (pipe, etc.) to U. S. Cast-Iron Pipe & Foundry Co., (valves and hydrants) to R. D. Wood & Co.; in Contract No. 2 Chandley Bros. & Co.; in Contract No. 3 the first three items are to be done by Chandley Bros. & Co. in 100 days, and the balance of the work by the water company; M. J. Drummond bid $6 for extension stems, Williamsport Valve & Hydrant Co. $3 for the same, and the Loetzer Valve & Mfg. Co. bid $3.50 for street boxes:

MACADAMIZING.—Hartford, Conn.—The highway commissioner has awarded a contract to Thomas Kearney, Meriden, for building a section of road in A[illegible] at $1.34¼ per lin. ft. for an 18-ft. width, and $1.9[illegible] for a 28-ft. road. The other bidders were: A. C. S[illegible]berg, Hartford, $1.38 per lin. ft.; D. B. Pierce Co., 7[illegible] per sq. yd.; F. H. Fagan Co., Derby, 80 cts. per yd. and A. Brazus, Middletown, $1.39 per lin. ft. for 18-ft. road and $2.19 for a 28-ft. road.

REPAVING.—Detroit, Mich.—For repaving in [illegible] streets the following bids were received by the dep[illegible] of public works on June 22, 1903: Conn, Brainard & Co., $2.11 per sq. yd. for brick or concrete; T. J. [illegible]ody, brick on concrete, $2.12; Cleveland Trinidad Pa[illegible] Co., sheet asphalt, $2.28; Toledo Construction & S[illegible] Co., sheet asphalt patching, $1.12.

MACADAMIZING.—Berkeley, Cal.—The Piedmont Paving Co. has been awarded a contract for macadamizing Felton St., at 7¼ cts. per ft.

BRICK PAVING.—Upland, Ind.—A contract was awarded June 20, 1903, to Frank De Hority, Elwood, for 1,500 ft. of brick paving, at $10.83 per lin. ft.

SEWERS AND STREET WORK.—Marion, Ind.—For the 38th street sewer, from Washington to Harmon St., Philip Hipskind & Sons submitted the following bids on June 16, 1903: 12-in. pipe $1.40, 10-in. $1.10, 6-in. [illegible] cts., manholes $25, catchbasins $20; F. M. Benner [illegible] $1.90 per lin. ft. for the South Marion storm sewer, [illegible] for manholes, and $20 for catchbasins; for the 36th St. sewer, Benner bid $1.36 per lin. ft., and $25 for manholes.

### BIDS RECEIVED AT BERLIN, PA., JUNE 27, 1903, FOR CONSTRUCTING WATER-WORKS.

Contract No. 1.—Pipe, Specials, Valves and Hydrants.

| Quantities. | U. S. C.-I. Pipe & Foundry Co. | Warren Foundry & Machine Co. | R. D. Wood & Co. | M. J. Drummond. | J. K. Dimick & Co. | Mfrs. Producers & Supply Co.* | Williamsport Vlv & Hydrnt Co. | Loetzer Valve & Mfg. Co. |
|---|---|---|---|---|---|---|---|---|
| 10-in. pipe, 285 lengths at 680 lbs., 96.90 tons.. | $30.00 | $32.50 | $32.90 | $31.30 | $33.00 | ..... | ..... | ..... |
| 10-in. " 125 " " 780 " 48.75 " .. | 30.00 | 32.50 | 32.90 | 31.30 | 33.00 | ..... | ..... | ..... |
| 10-in. " 170 " " 900 " 76.50 " .. | 30.00 | 32.50 | 32.90 | 31.30 | 33.00 | ..... | ..... | ..... |
| 8-in. " 250 " " 660 " 82.50 " .. | 31.65 | 32.50 | 33.40 | 31.80 | 33.00 | ..... | ..... | ..... |
| 8-in. " 850 " " 600 " 255.00 " .. | 31.65 | 32.50 | 33.40 | 31.80 | 33.00 | ..... | ..... | ..... |
| 6-in. " 710 " " 360 " 127.80 " .. | 31.65 | 32.50 | 33.40 | 32.80 | 33.00 | ..... | ..... | ..... |
| 4-in. " 700 " " 260 " 91.00 " .. | 32.65 | 32.50 | 34.35 | 33.30 | 33.00 | ..... | ..... | ..... |
| Special castings ..... 8.80 " .. | 60.00 | 55.00 | 55.00 | 55.00 | 58.00 | ..... | ..... | ..... |
| Flanged specials ..... 1.20 " .. | 80.00 | 100.00 | 95.00 | 95.00 | 70.00 | ..... | ..... | ..... |
| 10-in. standard flanged valves..... 3 each.. | ..... | ..... | 34.50 | 23.80 | 26.00 | $27.95 | $28.00 | $25.70 |
| 10-in. hub valve with street box.. 1 " .. | ..... | ..... | 27.85 | 25.48 | 25.50 | 31.20 | 28.00 | 24.70 |
| 8-in. hub valves with street boxes 2 " .. | ..... | ..... | 19.85 | 19.20 | 18.95 | 22.05 | 21.00 | 18.00 |
| 6-in. " " " 16 " .. | ..... | ..... | 14.00 | 13.50 | 12.50 | 16.00 | 14.70 | 11.90 |
| 4-in. " " " 16 " .. | ..... | ..... | 9.75 | 9.50 | 8.90 | 11.00 | 9.75 | 7.25 |
| 2-way hose hydrants, complete.... 20 " .. | ..... | ..... | 23.50 | 22.50 | 23.00 | 25.20 | 25.50 | 22.75 |
| Total, pipe, special castings and flanged spcls. | $24,896 | $25,904 | $26,574 | $25,506 | $26,285 | ..... | ..... | ..... |
| Total for valves and hydrants ..... | ..... | ..... | 1,021 | 965 | 944 | $1,095 | $1,058 | $1,021 |
| Total for valves, etc. ..... | ..... | ..... | 551 | 515 | 484 | 591 | 548 | 536 |

*This firm is representing the Ludlow Valve Co.

Contract No. 2.—Pipe Laying.

| Quantities. | J. M. Sweeney, Aspinwall, Pa. | J. R. Jones, Mt. Pleasant, Pa. | Chandley Bros. & Co., Beaver Falls, Pa. | H. D. Shannon, Orrville, Ohio |
|---|---|---|---|---|
| Laying 7,000 ft. of 10-in. c.-i. pipe, valves and specials, 3 ft. cover.. | $0.52 | $0.43 | $0.40 | $0.35 |
| " 6,800 " " 8-in. " " " " " 3 " " .. | .47 | .34 | .25 | .30 |
| " 6,200 " " 8-in. " " " specials, etc., 4 " " .. | .47 | .36 | .28 | .30 |
| " 8,400 " " 6-in. " " " " " 4 " " .. | .42 | .31 | .25 | .25 |
| " 8,000 " " 4-in. " " " " " 4 " " .. | .37 | .27 | .20 | .20 |
| Total for laying pipe, specials, etc. ..... | $16,230 | $12,318 | $9,936 | $10,050 |

Contract No. 3.—Reservoir and Spring Connections.

| Items. | J. R. Jones. | Chandley Bros. & Co. |
|---|---|---|
| Excavation, backfill, embankment.. | $1,316.78 | $1,100.00 |
| Concrete ..... .....400 cu. yds. | 7.00 | 6.75 |
| Pipe, specials, valves and iron work | ..... | 125.00 |
| Pipe columns ..... | ..... | 250.00 |
| Roof ..... | ..... | 750.00 |
| Spring boxes, cobblestone filling, etc. | 50.00 | 200.00 |
| 12" t. c. pipe and spcls..300 lin. ft.. | .63 | .90 |
| 8" " " " " ..260 " " | .43 | .70 |
| 6" " " " " ..320 " " | .35 | .60 |
| Work complete ..... | ..... | $5,783.00 |
| Omitting 2d, 4th and 5th items.. | $1,725.48 | 4,783.00 |
| Total ..... | $4,579.58 | $5,769.00 |
| Time to complete ..... | 75 days. | 100 days. |

*SEWER.—Jersey Shore, Pa.—J. Frank Gray, Secy., received the following bids on June 24 for constructing 10,555 ft. of sewer, and 5,000 ft. of conections; (1) bid of Thomas O'Dea, Cohoes, N. Y.; (2) David Peoples, 2649 Thompson St., Philadelphia; (3) John C. Schrade, Williamsport, Pa.; (4) W. H. Herr, Altoona, Pa. (awarded contract):

| | 1. | 2. | 3. | 4. |
|---|---|---|---|---|
| 18-in. pipe ... 250 lin. ft.. | $3.00 | $4.80 | $3.00 | $3.50 |
| " " ... 50 " " | 1.70 | 3.00 | 1.75 | 1.15 |
| 15-in. pipe: | | | | |
| 0 to 6 ft... 400 " " | .75 | 1.10 | .93 | .83 |
| 6 " 10 " ..1,700 " " | 1.00 | 1.40 | 1.17 | .93 |
| 10 " 14 " .. 910 " " | 1.25 | 1.70 | 1.74 | 1.17 |
| 14 " 18 " .. 100 " " | 1.75 | 3.50 | 2.05 | 1.37 |
| 12-in. pipe: | | | | |
| 6 to 10 ft...1,405 " " | .82 | 1.05 | 1.03 | .75 |
| 10 " 14 " ..2,195 " " | 1.17 | 1.30 | 1.40 | 1.00 |
| 14 " 18 " .. 600 " " | 1.67 | 2.40 | 1.91 | 1.25 |
| 10-in. pipe: | | | | |
| 0 to 6 ft... 100 " " | .49 | .95 | .64 | .52 |
| 6 " 10 " ..1,200 " " | .74 | 1.25 | .92 | .70 |
| 10 " 14 " .. 355 " " | 1.04 | 1.35 | 1.29 | .95 |
| 14 " 18 " .. 345 " " | 1.14 | 2.35 | 1.80 | 1.20 |
| 8-in. pipe: | | | | |
| 0 to 6 ft... 85 " " | .41 | .75 | .50 | .45 |
| 6 " 10 " .. 515 " " | .61 | 1.10 | .76 | .55 |
| 10 " 14 " .. 315 " " | .86 | 1.20 | 1.19 | .80 |
| House conns. .5,000 " " | .25 | .45 | .48 | .40 |
| Manholes: | | | | |
| 10 ft. or less 38 each... | 40.00 | 40.00 | 57.00 | 35.00 |
| 10 to 14 ft.. 20 lin. ft.. | 3.00 | 4.50 | 5.00 | 3.00 |
| Over 14 ft... 5 " " | 3.00 | 5.00 | 5.50 | 3.00 |
| Branches: | | | | |
| 15 × 4 ..... 38 each... | 1.80 | 1.40 | 1.63 | 1.80 |
| 12 × 4 ..... 159 " ... | 1.25 | 1.35 | 1.20 | 1.30 |
| 10 × 4 ..... 78 " ... | 1.00 | 1.10 | .91 | 1.00 |
| 8 × 4 ..... 76 " ... | .75 | .95 | .60 | .75 |
| Sheeting .....5,000 lin. ft.. | 25.00 | 21.00 | 20.00 | 20.00 |
| Flushtanks ... 3 each... | 75.00 | 98.00 | 109.00 | 45.00 |
| Concrete ..... 50 cu. yds. | 5.00 | 9.00 | 6.00 | 6.00 |
| Brickwork .... 50 " " | 15.00 | 12.00 | 9.00 | 10.00 |
| Deep-cut conns 620 lin. ft.. | .30 | .60 | .70 | .20 |
| Slate rock ....1,500 cu. yds. | .65 | 1.80 | .70 | .50 |
| Total ..... | $16,943 | $24,591 | $21,433 | $15,987 |

For street improvements the following bids were opened June 16: Boots St., W. W. Hatch & Sons, Logan block, with Berea curb, $12.10 per lin. ft; Metropolitan block, Berea curb, $12.50; Neil Paving Co., Logan block $11.65, Met., $11.66, Western $10.29. For 8th St. improvement, W. W. Hatch & Sons, Met. $7.60, Logan $7.65, Indiana $7.68, all with Berea curb; P. Hipskind & Sons, Met with stone base $7.70, Logan with stone base $7.75; L. C. Lillard, Met. or Logan $8, Clinton $7.37; Indiana $7.51, Western $7.31; add 5 cts. for Berea or Cleveland curb.

WATER MAIN.—New York, N. Y.—The following bids were received by the department of water supply, gas and electricity on June 16, 1903, for furnishing and laying a 48-in. water main at the Ridgewood reservoir, in Cypress Hills, Myrtle Ave. and Broadway; (1) bid of Lloyd Collis, 21 Park Row; (2) N. Y. Continental Jewel Filtration Co., 15 Broadway; (3) I. Harris & Co., 435 Flatbush Ave., Brooklyn:

| | 1. | 2. | 3. |
|---|---|---|---|
| Pipe ..... 5,400 tons.... | $32.50 | $31.00 | $33.75 |
| Special castings... 60 " ... | 70.00 | 65.00 | 60.00 |
| Laying 48-in. pipe.16,000 lin. ft.. | 4.25 | 3.00 | 4.50 |
| " 36-in. " . 100 " " | 3.00 | 3.00 | 2.25 |
| " 30-in. " . 50 " " | 3.00 | 3.00 | 2.25 |
| " 20-in. " . 100 " " | 2.00 | 3.00 | 1.00 |
| " 12-in. " . 150 " " | 1.50 | 3.00 | .90 |
| Excavation .....1,000 cu. yds. | 1.00 | 1.00 | 2.00 |
| 36-in. stop cocks.. 6 each... | 600.00 | 500.00 | 450.00 |
| 30-in. " " .. 3 " ... | 350.00 | 300.00 | 325.00 |
| 20-in. " " .. 2 " ... | 125.00 | 250.00 | 120.00 |
| 12-in. " " .. 6 " ... | 50.00 | 50.00 | 15.00 |
| Macadam pavement 4,000 sq. yds. | .50 | 1.00 | .25 |
| Block pavement .. 6,500 " " | .45 | .30 | .25 |
| Cobble pavement.. 2,000 " " | .45 | .25 | .15 |
| Brick pavement .. 90 " " | 12.00 | 15.00 | 20.00 |
| Concrete ..... 50 " " | 10.00 | 10.00 | 10.00 |
| Lumber ..... 10 M. ft... | 30.00 | 25.00 | 35.00 |
| 20 × 36-in. web ..... | 500.00 | 750.00 | 600.00 |
| 26 × 30-in. web ..... | 500.00 | 750.00 | 550.00 |
| Steel .....10,000 lbs..... | .035 | .05 | .035 |
| Total ..... | $264,480 | $236,750 | $274,908 |

*BRIDGES.—Chicago, Ill.—Maj. J. H. Willard, U. S. Engrs., writes us that the following bids were received on June 27, 1903, for constructing the superstructure of four steel highway bridges over the Illinois & Mississippi Canal, numbered 38, 39, 41 and 42: (1) bid of Jackson & Corbet Bridge & Steel Works, Chicago; (2) Chicago (Ill.) Bridge & Iron Co., total for fir $17,866; (3) Worden-Allen Co., Milwaukee, total for fir $18,193; (4) King Bridge Co., Cleveland, total for fir $18,118:

| | 1. | 2. | 3. | 4. |
|---|---|---|---|---|
| Cast-iron per lb ..... | ..... | $0.04⅝ | $0.04¾ | $0.04¾ |
| Steel .....335,480 lbs. | $0.06¾ | .04⅝ | .04¾ | .04¾ |
| Oak ..... 27,400 ft.. | 60.00 | 46.00 | 45.00 | 45.00 |
| Pine ..... 25,000 " .. | 60.00 | 36.00 | 43.00 | 38.00 |
| Fir ..... 25,000 " .. | ..... | 38.00 | 41.00 | 38.00 |
| Total ..... | $25,789 | $17,816 | $18,243 | $18,118 |

Remarks.—The totals are all with pine.

MACADAMIZING.—Greensboro, N. C.—A contract has been let to A. L. Patterson & Co., Macon, Ga., for about 50,000 yds. of macadamizing at 55 cts. per sq. yd.; grading, 7 cts. a yd.

*Information concerning contracts to be let or of supplies to be furnished, and corrections of errors and omissions in published items, are invited.*

## INDUSTRIAL NOTES.

THAYER & CO., INC., Philadelphia, eastern agents for the Cahall boilers, have removed from the Drexel Bldg. to the Land Title & Trust Co.'s New Bldg.

A. LESCHEN & SONS ROPE CO., St. Louis, Mo., has moved the San Francisco office to the Rialto Bldg., New Montgomery and Mission Sts., San Francisco.

THE R. M. SHATTUCK CO., 15 E. Swan St., Buffalo, has taken over the business conducted by R. M. Shattuck, who deal in architects', engineers' and draftsmen's supplies.

THE STANDARD EQUIPMENT CO. has been incorporated and has established offices in the Garfield Bldg., Cleveland, O., and will conduct a general engineering business.

THE GLACIER METAL CO., New York and London, has established an office in Richmond, Va. Glacier is a Babbitt used for high speed and heavy-running machinery.

THE U. S. SANITARY CO., Washington, D. C., has delivered to the War Department for shipment about 50 more carts, which makes several hundred delivered to the government.

THE U. S. FIREPROOFING CORPORATION, Keystone Bank Bldg., Pittsburg, Pa., announces that it has purchased several factories and mines in the fire clay district, situated on both the Pennsylvania Lines and the Erie system.

THE BROADWAY ENGINEERING CO., 853 Broadway, New York, has been formed to prepare plans, estimates, etc., for work either mechanical, hydraulic or electrical. T. L. Murphy is the Consult. Engr., and S. Feurstein is the Gen. Mgr.

THE PRESSED STEEL CAR CO., Pittsburg and New York, has appointed Mr. D. G. Farragut as its representative in Mexico, and he has opened an office at Calle de Gante 8, Mexico City, where all business in Mexico will be handled.

THE GREEN FUEL ECONOMIZER CO., Matteawan, N. J., has sold economizers as follows: Springfield St. Ry.; Scovill Mfg. Co., Waterbury, Conn.; Boston Rubber Shoe Co., Melrose, Mass.; American Tube Works, Somerville, Mass.; Amherst (Mass.) Gas Co.

THE AMERICAN BRIDGE CO., New York, completed the construction of a steel bridge 454 ft. long over the Arimas River. It has two piers and two abutments of hydraulic concrete; Atlas cement was used, and granite for stone capping. The piers are 35 ft. above the normal stage of water, and the flooring is of native hard woods—mahogany, black jucaro and subicu. The contract was let Feb. 13, 1902, at about $50,000. Construction was somewhat retarded by floods, which twice carried away the supporting works.

## PUELICATIONS RECEIVED.

STONES FOR BUILDING AND DECORATION.—By George P. Merrill, Curator of Geology in the U. S. National Museum, and Professor of Geology in Columbian University. Third Edition, Revised and Enlarged. New York: John Wiley & Sons. Cloth; 6 x 9 ins.; pp. 540; tables, 22 plates, and 24 figures in the text. $5.

DIRECTORY OF AMERICAN GAS COMPANIES.—Compiled and Corrected by E. C. Brown. New York: Progressive Age. Cloth; 7 x 10 ins.; pp. 242; tables. $5.

MECHANICAL REFRIGERATION.—A Practical Introduction to the Study of Cold Storage, Ice-Making, etc. By Hal Williams, Assoc. M. Inst. Mech. E. London: Whittaker & Co. New York: Macmillan & Co. Cloth; 5 x 8 ins.; pp. 406; tables, and 115 illustrations, including those on folding plates. $2.25 net.

HAND-BOOK OF CLIMATOLOGY.—By Dr. Julius Hann, Professor of Cosmical Physics in the University of Vienna. Part I. General Climatology. Translated, with the Author's Permission, from the Second Revised and Enlarged German Edition, with Additional References and Notes, by Robert De Courcy Ward, Assistant Professor of Climatology in Harvard University. New York: Macmillan & Co. Cloth; 6 x 9 ins.; pp. 437; tables and figures. $3 net.

MODERN LOCOMOTIVE PRACTICE.—A Treatise on the Design, Construction, and Working of Steam Locomotives. By C. E. Wolff, Assoc. M. Inst. C. E. Manchester, Eng.: The Scientific Publishing Co. Cloth; 6 x 9 ins.; pp. 267; tables, and 155 illustrations, including those on folding plates. $4.20 net.

## TRADE PUBLICATIONS.

(The standard sizes for pamphlets and trade catalogues recommended by all the principal engineering societies of the United States are: 3½ x 6 ins., 6 x 9 ins., and 9 x 12 ins.)

BUMPING POSTS.—Geo. L. Chatfield, Chicago. Two circulars.

These circulars show the Ellis Company posts and the effect of running cars over the stub ends of tracks fitted and not fitted with these posts.

PAINT FOR METAL WORK.—Goheen Mfg. Co., Canton, O. Paper, 3½ x 6 ins.; pp. 10; illustrated.

This pamphlet sets forth the merits of the company's "Carbonized Coating" for structural steel, smokestacks, gas holders, etc., and its "galvanum" for painting galvanized iron.

PUMPING MACHINERY.—The American Well Works, Aurora, Ill. Paper; 6 x 9 ins.; pp. not given; illustrated.

Air compressors, air lifts, and various types of pumping machinery suitable for use with wells are described in this catalogue.

PIPE-JOINT COMPOUND.—Joseph Dixon Crucible Co., Jersey City, N. J. Paper; 3 x 6 ins.; pp. 13; illustrated.

This is an unusually readable publication of its kind. It sets forth the merits and gives the prices of a graphitic jointing material, used in place of red lead.

## SEWERS, WATER-WORKS, AND ELECTRIC LIGHTS.

### POSTPONEMENT OF LETTING.

Yazoo City, Miss.

Sealed proposals will be received, till 8 p.m., Aug. 3, 1903, by the Mayor and Board of Aldermen of Yazoo City, Miss., for furnishing certain labor, material and equipment for:

A. Sewers.—System approximately 11 miles 18"—6" pipe sewers, with accessories, constructed complete; centrifugal pumps and engines.

B. Water-Works—Approximately 12 miles 12"—4" cast-iron pipe, hydrants and valves, pumping basin, lined and covered reservoir, steam pumps, condenser and feed-water heater.

C. Electric Lights—Building, 450 HP. Scotch marine or water-tube boilers, 200 and 100 KW. polyphase alternators, direct-connected to compound condensing engines, switchboard, arc lamps, transformers and pole line supplies.

Plans are on file at the office of the engineers and the office of the clerk; for specifications, address the engineers. The right is reserved to reject any or all proposals.

E. J. POURSINE, City Clerk.
KIRKPATRICK & JOHNSON, Engineers,
2-1t Jackson, Miss.

## 10 MILES OF PIPE SEWERS.

Union, S. C.

Sealed proposals will be received by the Sewerage Commission of Union, S. C., until 4 o'clock p. m., Aug. 4, 1903, for constructing Pipe Sewers. Extent of proposed work is approximately 10 miles of Pipe Sewers, from 8 to 18 ins. diameter.

The Commission reserves the right to reject any or all bids. For specifications, forms of proposals, etc., address the Secretary of the Sewerage Commission,

GEO. H. OETZEL,
J. L. LUDLOW, Engr., Union, S. C.
Winston, N. C. 27-2t 30-1t

## TWO 350-HP. STEAM BOILERS.

Notice is hereby given that bids will be received by the Electric Light Committee of the Common Council of the City of Logansport, Ind., up to 12 o'clock noon, on the 31st day of August, 1903, for the furnishing of two (2) Steam Boilers having a capacity of three hundred and fifty (350) horse-power each, each boiler to be of a high-pressure character.

Witness my hand this 23d day of June, 1903.

A. D. FANSLER,
27-3t Clerk City Logansport, Ind.

PROPOSALS FOR WAREHOUSE.—Office of Constructing Quartermaster, Fort Totten, Willet's Point, N. Y., June 24, 1903.—Sealed proposals for Warehouse, foundation of piling, at Quartermaster's wharf, Fort Totten, N. Y., will be received here until 12 m. July 24, 1903, and then opened. Information furnished upon application. Envelopes containing proposals should be endorsed "Proposals for Warehouse," and addressed G. H. McMANUS, Constructing Quartermaster. 27-4t

SEALED PROPOSALS, endorsed "Proposals for Electric Crane," will be received at the Bureau of Yards and Docks, Navy Department, Washington, until 1 o'clock, July 18, 1903, and then and there publicly opened, for furnishing and installing a Three-Motor Electric Traveling Crane of 30,000 lbs. capacity at the Navy Yard, Boston, Mass. Specifications can be seen at the Bureau, or will be furnished by the Commandant of the navy yard named. MORDECAI T. ENDICOTT, Chief of Bureau. June 18, 1903. 27-2t

## STREET WORK.

Vailsburgh, N. J.

Sealed proposals will be received by the Mayor and Council of the borough of Vailsburgh, on Tuesday, July 14, 1903, from 8:15 to 8:30 o'clock P. M., at the Borough Hall, and at no other time or place, and opened at the last named hour, at a public meeting of the Council to be held at said time and place; for grading and removal of trees, laying and resetting curb, and laying and relaying bluestone flag walks on North Sanford street, and on portions of South Sanford street, in the borough of Vailsburgh. Estimates will be received for the work under the following subdivisions:

First—Earth excavation and removal of trees.

Second—Furnishing and laying approximately 7,500 lineal feet of new curb. Relaying approximately 1,300 feet of old curb.

Third—Furnishing and laying approximately 33,400 square feet of blue-stone flag four feet wide and two and one-half inches thick. Relaying approximately 1,800 square feet of blue-stone flag.

Plans and specifications can be seen and blank forms for proposals procured at the office of Eugene A. McMurray, Borough Engineer, 22 Clinton street, Newark, N. J.

Bidders bidding on the whole work must make three separate proposals for the same; one for grading and removal of trees, one for furnishing and laying curbing and resetting curbing, one for furnishing and laying and relaying blue-stone flag. Each proposal shall be indorsed with reference to that part of the work to which it relates, and shall be submitted in an otherwise plain envelope, and accompanied by a certified check for two hundred dollars ($200) on some bank in the State of New Jersey; made to the order of John C. Groel, collector. A check must accompany each bid, but must not be sealed up with it. The council reserves to itself the right to accept or reject any or all of the bids for the above work, as it may deem best for the interest of the borough.

THE MAYOR AND COUNCIL OF THE BOROUGH OF VAILSBURGH.

ANDREW R. FITZSIMMONS,
2-1t Borough Clerk.

PROPOSALS FOR GRADING AND ROADS AND WALKS.—Depot Quartermaster's Office, 170 Summer St., Boston, Mass., July 6, 1903.—Sealed proposals, in triplicate, will be received at this office until 11 a. m., Aug. 6, 1903, and then opened in the presence of bidders, for Grading and constructing Roads and Walks at Fort Strong, Long Island, Boston Harbor, Mass. The Government reserves the right to reject any or all bids. Proposals and information furnished on application. Plans and specifications can be seen at this office. Bidders will state time required for the work. A guarantee in the amount of 10% of the bid will be required. Unguaranteed bids will not be considered. Envelopes containing proposals to be marked "Proposals for Grading and Roads and Walks, Fort Strong Mass.," and addressed to A. M. PALMER, Depot Quartermaster. 2-4t

PROPOSALS FOR FURNISHING 5' D CAST-IRON PIPE AND SPECIALS for the Sewerage Pumping Station, Washington, D.C., Office of the Commissioners, D. C., Washington, June 27, 1903.—Sealed proposals will be received at this office until 12 o'clock m., July 25, 1903, for furnishing 5' D Cast-Iron Pipe and Specials. Forms, specifications and necessary information may be obtained at this office. HENRY B. F. MACFARLAND, HENRY L. WEST, JOHN BIDDLE, Commissioners, D. C. 2-2t

## TUNNEL-PUMP PIT.

Wellsville, Ohio.

Sealed bids will be received by the Board of Water Works Trustees of the City of Wellsville, Ohio, at their office in said city until Thursday, July 30, 1903, at 12 o'clock noon of said day, for furnishing all the necessary labor and material and erecting foundations, tunnel, pump-pit and concrete work necessary for the new pumping station to be built by the City of Wellsville, Ohio, on the land owned by the city on First street in accordance with the plans, specifications and other details now on file in the office of said trustees, or full details can be obtained upon application to Robert. W. Hunt & Co., engineers, Monongahela Building, Pittsburg, Pa.

The bids may be for either work or material or for both. If for both each to be separately stated with the price. Each bid must contain the full name of every person or company interested in the same and be accompanied by a bond to the satisfaction of the board or a certified check on some solvent bank in the sum of $300 as a guarantee that if the bid is accepted a contract will be entered into and the performance properly secured.

Should any bid be rejected such check will be promptly returned to the bidder and should any contract be entered into said check will be returned upon the signing of the same.

The right is reserved to reject any or all bids.

All bids must be directed to the Board of Water Works Trustees, City of Wellsville, Ohio.

By order of the board.

E. A. GERREN,
JNO. F. DONNELLY,
W. G. STEWART,
Trustees.

H. W. SINCLAIR, Clerk.
July 1, 1903. 2-1t

U. S. ENGINEER OFFICE, 518 Bradbury Building, Los Angeles, Cal., June 24, 1903.—Sealed proposals for Suction Dredge will be received here until 11 a. m., July 24, 1903, and then publicly opened. Information furnished on application. J. H. WILLARD, Major, Engrs., U. S. A. 26-4t

PROPOSALS will be received at the Bureau of Navigation, Navy Department, Washington, D. C., until 12 o'clock noon, Wednesday, July 22, 1903, and there publicly opened immediately thereafter, for Officers' Quarters at the U. S. Naval Academy, Annapolis, Md. The amount allotted for the entire work is $280,000. Blank forms of proposal and specifications will be furnished, and plans may be seen on application at the Bureau of Navigation, Navy Department, Washington, D. C., at the U. S. Naval Academy, Annapolis, Md., or at the office of Ernest Flagg, Architect, 35 Wall St., New York. A set of drawings may be obtained at the Architect's office, by depositing $15, $10 of which will be refunded on their return. H. C. TAYLOR, Chief of Bureau. July 3, 1903. 2-2t

U. S. ENGINEER OFFICE, Army Building, New York, June 10, 1903.—Sealed proposals for Dredging in Bronx River, East Chester Creek, Huntington Harbor, Flushing Bay and Canarsie Bay, N.Y., will be received here until 12 m., July 10, 1903, and then publicly opened. Information on application. AMOS STICKNEY, Col., Engrs. 24-4t

ENGINEER OFFICE, U. S. Army, Mobile, Ala., June 30, 1903.—Proposals for furnishing Valves and Special Irons for Locks 1, 2 and 3 Warrior and Tombigbee rivers, Ala., will be received at this office unttil 12 m., July 30 1903, and then publicly opened. Information furnished on application. W. E. CRAIGHILL Capt., Corps of Engineers. 27-4t

## PUMPING STATION.

Wellsville, Ohio.

Sealed bids will be received by the Board of Water Works Trustees of the City of Wellsville, Ohio, at their office until Thursday, July 30th, 1903, at 12 o'clock noon on said day, for furnishing all the necessary labor and materials and erecting on foundations furnished by the city the building for the new pumping station to be built by the City of Wellsville, Ohio, on the land owned by said city on First street, in accordance with the plans, specifications and other details now on file in the office of said trustees, or full details may be had upon application to Robert W. Hunt & Co., engineers, Monongahela Building, Pittsburg, Pa. The bids may be for either work or material or for both. If for both each to be separately stated with the price. Each bid must contain the full name of every person or company interested in the same and be accompanied by a bond to the satisfaction of the board or a certified check on some solvent bank in the sum of $300 as a guarantee that if the bid is accepted a contract will be entered into and its performance properly secured.

Should any bid be rejected such check will be promptly returned to the bidder and should any contract be entered into said check will be returned upon the signing of the same.

The right is reserved to reject any or all bids.

All bids must be directed to the Board of Water Works Trustees, City of Wellsville, Ohio.

By order of the board.

E. A. GERREN,
JNO. F. DONNELLY,
W. G. STEWART,
Trustees.

H. W. SINCLAIR, Clerk.
July 1, 1903. 2-1t

## 15,000 SQ. YDS. ASPHALT PAVING.

West Bay City, Mich.

Sealed proposals will be received by the City Clerk up to Monday, July 20th, 7.30 P. M., for paving several streets with brick, or sheet asphalt on concrete foundation, approximately 15,000 sq. yds. A certified check for $500 to accompany each bid, and a 10-year guarantee will be required on asphalt pavement. JOHN M. ROY,

H. C. THOMPSON, City Clerk.
City Engineer. 2-2t

U. S. ENGINEER OFFICE, Pittsburg, Pa., July 2, 1903.—Sealed proposals for building about 600 ft. of Chanoine Dam (omitting wickets), for navigable pass of Dam No. 3, Ohio River, Glenosborne Station, Pa., F. W. & C. R. R., will be received here until 12 m., Aug. 1, 1903, and then publicly opened. Information furnished on application. WM. L. SIBERT, Capt., Engrs. 2-4t

U. S. ENGINEER OFFICE, 2001 I St., N.W., Washington, D. C., June 10, 1903.—Sealed proposals for construction of a Highway Bridge across the Potomac River at Washington, D. C., will be received here until 12 m., July 23, 1903, and then publicly opened. Information furnished intending bidders on application. CHAS. J. ALLEN, Lieut.-Col., Engrs. 25-4t

U. S. ENGINEER OFFICE, Detroit, Mich., June 18, 1903.—Sealed proposals for building Concrete Superstructure on Main Pier at Sand Beach Harbor of Refuge, Mich., will be received here until 3 p. m., standard time, July 18, 1903, and then publicly opened. Information furnished on application. LANSING H. BEACH, Major, Engrs. 25-2t 28-2t

For Proposals see pages XXXI., XXXII., of Advertisements and pages 23, 24 of Supplement.

## BRICK AND MACADAM PAVING.

Cortland, N. Y., June 22, 1903.

Sealed proposals for the Paving of Port Watson St., for a distance of about 3,300 ft. with Macadam roadway and with stone curbs and brick gutters, endorsed "Proposals for Paving Port Watson St.," will be received at the office of the Board of Public Works, Cortland, N. Y., until 8 o'clock p. m., of the 20th day of July, 1903.

The several bids will be computed, tested and canvassed by the quantities and qualities mentioned in the following estimate:

7,350 sq. yds. Macadam Pavement;
4,050 sq. yds. Brick Pavement;
7,000 lin. ft. Stone Curb and Header;
50 cu. yds. Concrete;
1,000 lbs. Cast-iron.

Each proposal must be accompanied by a certified check for $1,200. Plans can be seen and specifications secured at the office of the Clerk of Board of Public Works, Cortland, N. Y., and at the office of the Engineers, 513 Dillaye Memorial Bldg., Syracuse, N. Y.

A bond in the sum of $15,000 will be required. The Board of Public Works reserves the right to reject all bids.

BOARD OF PUBLIC WORKS.
S. S. KNOX, President.
E. S. DALTON, Clerk.
ALLEN & FARRINGTON, Syracuse, N. Y., Engineers. 2-1t

## WATER-WORKS.

Wayland, N. Y.

Sealed proposals will be received by the Board of Trustees of the Village of Wayland, N. Y., until 12 o'clock noon on July 28th, 1903, for the construction of a system of Water-Works, consisting of a small service reservoir, pump well, pump and about 4½ miles of cast-iron mains with their hydrants and other appurtenances.

Plans can be seen and specifications obtained at the office of the Board at Wayland, or at the office of Knight & Hopkins, Engineers, Rome, N. Y.

The Board hereby reserves the right to reject any or all bids, or to accept any that in their judgment will be for the best interests of the village.

Cash or a certified check, made payable to the order of the Board of Trustees of Wayland, N. Y., to the amount of $500, must be deposited by each bidder and accompany his bid as a guarantee that in case the contract is awarded him he will within seven days thereafter execute said contract.

Bids must be sealed and addressed to the Board of Trustees, Wayland, N. Y., and marked on the outside of the envelope enclosing them "Proposal for Wayland Water-Works."

(Signatures of the Board.)

W. H. DEITZEL,
President Board of Trustees.
F. ALLEN DE GRAW, Clerk. 2-2t

## WATER-WORKS IMPROVEMENT.

Bristol, Va.

Sealed proposals will be received by the City of Bristol, Va., until 12 o'clock noon, on the 15th day of July, 1903, and then opened, for material and construction of a Masonry Dam, Reservoir, Storm Water By-Pass, etc.

Plans and specifications can be seen at the Dominion National Bank, Bristol, Va., or at the office of D. J. Howell, Engineer, 605 12th St., N.W., Washington, D. C.

The right to reject any or all bids is reserved.

Bond for double the estimated amount of the contract.

A certified check for $250.00, made payable to H. E. Jones, Chairman, must accompany each bid.

Bids must be sealed, addressed to H. E. Jones, Chairman, and marked "Proposal for Bristol, Va., Water-Works Improvement."

H. E. JONES, Chairman.
DAVID J. HOWELL, Engineer. 2-1t

## 30 MILES OF RAILWAY CONSTRUCTION.

Cape Breton, Canada.

The Mabou & Gulf Railway Co., Ltd., will receive tenders for the complete construction of thirty miles of its road complete, except equipment. Payment to be part cash, balance bonds. Part of road now in operation. Address J. BOARDMAN CANN, President, Mabou, Cape Breton, N. S. 26-3t

## WATER-WORKS AND ELECTRIC LIGHTING PLANT.

Mt. Airy, N. C.

Sealed proposals will be received by the Mayor of the Town of Mt. Airy, N. C., until 9 a. m., Monday, July 27, 1903, for certain supplies and work incidental to the Electric Lighting, Water-Works and Water Power Plant to be constructed in the Town of Mt. Airy.

Work will embrace approximately, small timber and masonry dam; masonry power house and pump house; 1 36-in. water wheel, 1 100-KW. generator; 250 poles, 1 350-gallon power pump, 2 earth embanked reservoirs; 2 miles of spiral steel riveted pipe; 4 miles of standard cast-iron pipe; 2 75-HP. horizontal tubular boilers; 1 Corliss Engine; together with all detail supplies incidental to such work.

Plans and specification are expected to be on file at the office of the Mayor of Mt. Airy, N. C., and at the affice of the Engineer in Petersburg, Va.,not later than July 10. Printed copies of specifications will be mailed upon application. The right is reserved to reject any and all bids.,

J. A. HADLEY, Mayor,
Engineer: Mt. Airy, North Carolina.
JOHN W. HAYS, Petersburg, Va. 2-1t

## 1,850 FT. OF BRICK SEWER.

Albert Lea, Minn., July 6, 1903.

Sealed proposals for the construction of a Brick Sewer will be received by the City Council of the City of Albert Lea, at the Council Rooms in said City, until 4 o'clock p. m., of the 27th day of July, 1903.

The work will comprise approximately as follows:

450′ of 32 × 48″ brick sewer, egg-shaped section, 8 to 15′ deep.
1,140′ of 37 × 55″ brick sewer, egg-shaped section, 8 to 31′ deep.
260′ of 50″ brick sewer, horseshoe-shaped section, 0 to 8′ deep.
5 manholes, and 5 catchbasins.

Each bid must be accompanied by a bond in a sum equal to 30% of the bid, with at least two sureties and conditioned upon the signing of a contract and the furnishing of a bond in the full amount of the contract price, within 12 days after acceptance, as provided for by the City Charter.

All bids must be made on blank forms furnished for that purpose and must be filed with the City Clerk.

Plans and specifications may be seen and blank proposals obtained after July 15th, 1903, at the office of the City Clerk, at the office of Loweth & Wolff, Consulting Engineers, First National Bank Bldg., St. Paul, Minn., and at the Engineering News Office, Monadnock Bldg., Chicago.

The right is reserved to reject any or all bids.

C. E. BRAINERD,
2-1t City Clerk.

## SEWERAGE SYSTEM.

Bond Hill, O., June 10, 1903.

Sealed proposals will be received by the Clerk of the Village of Bond Hill, Ohio, at the office of Earnshaw & Punshon, Village Engineers, Glen Building, Southwest corner of 5th and Race Sts., Cincinnati, O., until 12 o'clock noon of July 13, 1903, for furnishing the necessary labor and materials for the construction of Sewers in the Village of Bond Hill, O., according to the plans and specifications therefor on file in the office of the Village Clerk of said Village, a certified copy of which can be seen at the office of Earnshaw & Punshon, Village Engineers, Glen Bldg., Cincinnati, O.

The bids may be for either work or material or for both. If for both each must be separately stated with the price. Council reserves the right of rejecting any or all of the bids.

Each bid must be accompanied by a sufficient guaranty of two disinterested persons, that if the bid is accepted the contract will be entered into and the performance of it properly secured.

Bidders are required to use the printed form as no other will be received.

By order of Council.

A. J. KIPHART,
2-1t Clerk of the Village of Bond Hill, O.

## FOUR MILES OF PIPE SEWERS.

Indiana, Pa.

Sealed proposals will be received by the President of Council and Sewer Committee of Indiana, Pa., until 6 o'clock July 22, 1903, for furnishing and constructing 10, 12 and 18-in. Pipe Sewers. Extent of proposed work is approximately 4 miles. Plans and specifications may be seen at the office of J. Wood Clark, Esq., Indiana, Pa. A check for $500 must accompany each bid. The right is reserved to reject any or all bids. 2-1t

R. M. MULLEN, Engineer-in-Charge.

## 4,000 FT. OF TUNNELS AND CONDUITS.

Agricultural College, Michigan, July 3, 1903.

Sealed proposals for the construction of four thousand (4,000) feet, approximately, of Tunnels and Conduits, including all materials and labor, for a heating and lighting system at the Michigan State Agricultural College will be received until noon of July 18, 1903, at the office of A. M. Brown, Secretary State Board of Agriculture, Agricultural College, Michigan. Plans and specifications are on file at the office of Chas. L. Weil, Consulting Engineer, Agricultural College, Mich.

Each bidder must submit with his proposal a certified check or bond for the sum of seven thousand five hundred ($7,500) dollars, payable to the Secretary of the State Board of Agriculture of Michigan, as provided by law.

The right is reserved to reject any or all bids.

Telegraph Address, Lansing, Mich. 2-1t

## ENLARGING DAM.

NOTICE TO CONTRACTORS.

Office of
The Board of Water Commissioners
of the City of Yonkers.
Yonkers, N. Y., July 3, 1903.

Sealed proposals will be received by the Board of Water Commissioners of the City of Yonkers, at a meeting thereof to be held at its office, Manor Hall, on Saturday, the 25th day of July, at 8 p. m., for entering into a contract for the enlargement of the Grassy Sprain Reservoir Dam.

Specifications can be seen and forms of proposals obtained at the office of the Board.

Each proposal must be sealed, addressed to the Board of Water Commissioners of the City of Yonkers, endorsed "Proposals for Enlargement of the Grassy Sprain Reservoir Dam," and must be accompanied by the written consent of two sureties to become guarantors of the faithful performance of the contract. A certified check to the amount of $1,000 must accompany each bid.

The Board of Water Commissioners reserves the right to accept or reject any or all proposals.

By order of the Board.

JOSEPH H. BEALL, President.
A. W. KINGSBURY, Clerk. 2-1t

## 48-IN. PIPE AND CASTINGS.

NOTICE TO CONTRACTORS.

Office of
The Board of Water Commissioners
of the City of Yonkers.
Yonkers, N.Y., July 3, 1903.

Sealed proposals will be received by the Board of Water Commissioners of the City of Yonkers, at a meeting thereof to be held at its office, Manor Hall, on Saturday, the 25th day of July, at 8 p. m., for entering into a contract to furnish and deliver the following cast-iron pipes:

4 lengths of 48-in. pipe at 8,000 lbs. per length of 12 ft.;
Two 48-in. special castings to weigh about 4,000 lbs. each;

Specifications and forms of proposals can be obtained at the office of the Board.

Each proposal must be sealed, addressed to the Board of Water Commissioners of the City of Yonkers, endorsed, "Proposals for Pipes," and must be accompanied by the written consent of two sureties to become guarantors of the faithful performance of the contract.

The Board of Water Commissioners reserves the right to increase any or all of the foregoing quantities 50% and to accept or reject any or all proposals.

By order of the Board.

JOSEPH H. BEALL, President.
A. W. KINGSBURY, Clerk. 2-1t

## REBUILDING BRIDGE.

Woonsocket, R. I.

Proposals will be received by Walter F. Fontaine, Chairman of Committee on Streets and Bridges, until 2 o'clock p. m., Wednesday, July 22, 1903, for rebuilding the Globe Arch Bridge, Retaining Walls, etc., South Main St. A certified check for $500 must accompany bid.

Plans and specifications can be procured at City Engineer's Office. The right is reserved to reject any or all bids.

WALTER F. FONTAINE, Chairman.
LATIMER W. BALLOU,
PETER B. MULVEY,
Committee on Streets and Bridges.
FRANK H. MILLS, City Engineer. 2-2t

U. S. ENGINEER OFFICE, Custom House, New Orleans, La., July 3, 1903.—Sealed proposals for constructing Lock Gates, Plaquemine, La., will be received here until 12 m., Aug. 3, 1903, and then publicly opened. Information furnished on application. H. M. ADAMS, Lieut.-Col., Engrs. 2-4t

## REBUILDING BRIDGE.

NOTICE TO CONTRACTORS.

Kansas City, Kan.

Sealed bids will be received by the Board of County Commissioners of Wyandott county, Kansas, at my office in Kansas City, said county, until 12 m., upon Monday, Aug. 3, 1903, at which time said bids will be opened for furnishing all the material and labor for re-constructing and building a Bridge across the Kansas River, between Wyandott county and Johnson county, Kansas, at Bonner Springs, in Wyandott county, said bridge to be known as the Bonner Springs Bridge, according to plans and specifications now upon file in my office.

Each bid must be accompanied by a deposit of $1,000 in cash or by a certified check for that amount drawn upon some responsible bank in said county, and payable to the order of Frank M. Holcomb, County Clerk, as an earnest of good faith upon the part of the bidder, that if awarded the contract he will forthwith accept same, and will enter into a bond and contract satisfactory to the said Board, and that if he fails so to do, said $1,000 deposit shall therefore be forfeited to said county as liquidated damages for the benefit of its Bridge Fund.

Said bond furnished by the successful bidder must be a corporation bond in a sum not less than that of the contract price entered into, and must be executed by two guarantee companies authorized to do business in this state.

Said contract and work must be completed within 180 days from and after the date upon which the contract is signed by both parties thereto, and for each and every day delay after the expiration of said 180 days upon the part of the contractor in completing his work and contract he shall forfeit to said county the sum of $25.00 per day as liquidated damages and said forfeit money may be withheld by said Board out of the contract price in final settlement with the contractor.

Said Board reserves the right to reject any and all bids.

Witness my hand and the county seal this 2d day of July, 1903.

[SEAL.] FRANK M. HOLCOMB,
2-4t County Clerk.

## REBUILDING BRIDGE.

NOTICE TO CONTRACTORS.

Kansas City, Kan.

Sealed bids will be received by the Board of County Commissioners of Wyandott county, Kansas, at my office in Kansas City, said county, until 12 m., upon Monday, Aug. 3, 1903, at which time said bids will be opened for furnishing all the material and labor for re-constructing and building a Bridge across the Kansas River, in Wyandott county, Kansas, near Turner, Kan., said bridge to be known as the Turner Bridge, according to plans and specifications now upon file in my office.

Each bid must be accompanied by a deposit of $1,000 in cash or by a certified check for that amount drawn upon some responsible bank in said county, and payable to the order of Frank M. Holcomb, County Clerk, as an earnest of good faith upon the part of the bidder, that if awarded the contract he will forthwith accept same, and will enter into a bond and contract satisfactory to the said Board, and that if he fails so to do, said $1,000 deposit shall therefore be forfeited to said county as liquidated damages for the benefit of its Bridge Fund.

Said bond furnished by the successful bidder must be a corporation bond in a sum not less than that of the contract price entered into, and must be executed by two guarantee companies authorized to do business in this state.

Said contract and work must be completed within 180 days from and after the date upon which the contract is signed by both parties thereto, and for each and every day delay after the expiration of said 180 days upon the part of the contractor in completing his work and contract he shall forfeit to said county the sum of $25.00 per day as liquidated damages and said forfeit money may be withheld by said Board out of the contract price in final settlement with the contractor.

Said Board reserves the right to reject any and all bids.

Witness my hand and the county seal this 2d day of July, 1903.

[SEAL.] FRANK M. HOLCOMB,
2-4t County Clerk.

U. S. ENGINEER OFFICE, New London, Conn., July 6, 1903.—Sealed proposals will be received here until noon of July 17, 1903, and then publicly opened, for furnishing 10,000 bbls. of American Portland Cement on dock at Great Gull, Plum or Fisher's Island, N. Y., as may be directed, or on dock or cars at New London, Conn. Information on application. CHAS. F. POWELL, Maj., Engrs. 2-2t

For Proposals see pages XXXI, XXXII, of Advertisements and pages 33, 34 of Supplement.

# NOW READY

# EARTHWORK and ITS COST

## By H. P. GILLETTE

**A Complete and Practical Treatise on the Methods of Earth Removal, with Valuable Data on the Cost of the Various Operations**

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**Cranes** (Portable).
North Penn Iron Co, 3d & Sedgley ave, Philadelphia

**Creosoting.**
American Creosote Works, New Orleans
Atlantic Creo & Wood Pres Works, Norfolk, Va
Carbolineum Wood Preserving Co, 13 Park Row, N Y
Eppinger & Russell Co, 66 Broad st, New York
International Creosoting & Con. Co, Galveston, Tex
New Orleans Wood Pres Works, New Orleans, La
Norfolk Creosoting Co, Norfolk, Va
Southern Cresoting Co, Slidell, La
U S Wood Preserving Co, 29 Broadway, New York
West Pascagoula Creosote Wks, W Pascagoula, Miss
Wyckoff Pipe & Creosoting Co, Stamford, Conn

**Crucibles.**
Dixon, Jos., Crucible Co, Jersey City, N J

**Damper Regulators.**
d'Este, Julian Co, 15 Canal st, Boston

**Derrick and Derrick Fittings.**
American Hoist & Derrick Co, St. Paul, Minn
Byers, John F, Machine Co, Ravenna, Ohio
Contractors' Plant Mfg Co, 130 Erie st, Buffalo, N Y
Dobbie Foundry & Machine Co, 148 Bey st, N Y
Hayward Co, 97 Cedar st, New York
Kaltenbach & Griess, 1618 Williamson bldg, Cleveland
Lambert Hoisting Engine Co, Newark, N J

**Diamond Drills.**
American Diamond Rock Drill Co, 95 Liberty st, N Y
Sullivan Machinery Co, 135 Adams st, Chicago

**Differential Hoists.**
Boston & Lockport Block Co, Boston, Mass

**Ditching and Excavating Machinery.**
Atlantic, Gulf & Pacific Co, Park Row bldg, N Y
Beatty, M, & Sons, Welland, Ont
Bucyrus Co, S Milwaukee, Wis
Carson Trench Machine Co, 16 Dorrance st, Boston
Hayward Co, 97 Cedar st, New York
Marion Steam Shovel Co, Marion, Ohio
Osgood Dredge Co, Albany, N Y
Souther, John, & Co, 12 Post Office Square, Boston
Toledo Foundry & Machine Co, Toledo, Ohio
Vulcan Iron Works, Chicago
Vulcan Iron Works Co, Toledo
Western Wheeled Scraper Co, Aurora, Ill

**Diver.**
Falcon, Jos. G, 1110 Ayres Court, Evanston, Ill

**Diving Apparatus.**
Morse, Andrew J, & Son, 140 Congress st, Boston
Schrader's, A, Son, 32 Rose st, New York

**Docks** (Composite and Steel Floating).
Crandall, H I, & Son Co, East Boston, Mass

**Doors and Door Fittings.**
Kinnear Mfg Co, Columbus, Ohio
N. J. Foundry & Machine Co, 9 Murray st, N Y
Wilson, J Godfrey, 3 W 29th St, N Y

**Drafting Tables.**
Emerson Mfg. Co, F W, Rochester, N Y
Hein Furniture Co, Toledo, O

**Draftsmen's Supplies.** (see Instruments.

**Drain Tile** (see Pipe, Vitrified Clay.)

**Dredging and Dredging Machinery.**
Atlantic, Gulf & Pacific Co, Park Row bldg, N Y
Beatty, M. & Sons, Welland, Ont
Bucyrus Co, S Milwaukee, Wis
Edwards, Jos., & Co, 414 Water st, New York
Ellicott Machine Co, Baltimore, Md
Falcon, Jos, G, 1110 Ayres Court, Evanston, Ill
Featherstone Foy & Mach Co, 348 N. Halsted, Chicago
Hayward Co, 97 Cedar st, New York
Lawrence Machine Co, Lawrence, Mass
Marion Steam Shovel Co, Marion, Ohio
Morris Machine Works, Baldwinsville, N Y
Mundy, J S, Newark, N J
Osgood Dredge Co, Albany, N Y
Seattle Bridge Co, Seattle, Wash
Smith & Robinson, 8-10 Bridge st, New York
Smith, Theo., & Bro, Jersey City, N J
Toledo Foundry & Machine Co, Toledo, Ohio
Vulcan Iron Works Co Toledo

**Drilling and Boring Machines** (Portable).
Contractors' Equip Co, 447 W 5th st, Kansas City, Mo
Knight Mfg Co, Canton, Ohio
Philadelphia Pneumatic Tool Co, Philadelphia
Stow Flexible Shaft Co, 26th & Callowhill sts, Phila
Stow Mfg Co, Binghamton, N Y
(see also Pneumatic Tools.)

**Drills** (Rock).
American Diamond Rock Drill Co, 95 Liberty st, N Y
Davis Calyx Drill Co, 128 Broadway, New York
Ingersoll-Sergeant Drill Co, Havemeyer bldg, N Y
McKiernan Drill Co, 170 Broadway, New York
Rand Drill Co, 128 Broadway, New York
Rogers, John M, Gloucester City, N J
Sullivan Machinery Co, 135 Adams st, Chicago, Ill
Wood Drill Works, 30 Dale ave, Paterson, N J

**Drill Sharpeners**
Hendrie & Bolthoff Mfg & Sup. Co, Denver, Colo.

**Drop Forgings.**
Keystone Drop Forge Wks, 2001-63 Clearfield st, Phila

**Drop Hammers.**
Merrill Bros, 467 Kent ave, Brooklyn, N Y

**Dry Docks** (Marine Railway).
Crandall, H I, & Son Co, East Boston, Mass

**Dryers** (Cement).
American Process Co, 62 William st, New York
Bartlett, C O, & Snow Co, Cleveland, O
Crown Dryer Co, 129 Euclid ave, Cleveland
Cummer, F D, & Son Co, Cleveland, O
Ruggles Coles Engineering Co, 41 Cortlandt st, N Y
Simpson, H S, Mfg's Agt, Electric bldg, Cleveland

**Dynamite** (see Explosives).

**Dynamos.**
C & C Electric Co, Central R R bldg, New York
Coho & Co, H B, 114 Liberty st, New York
General Electric Co, Schenectady, N Y
Stow Mfg Co, Binghamton, N Y
Westinghouse Electric & Mfg Co, Pittsburg, Pa

**Economizers** (Fuel).
Green Fuel Economizer Co, Matteawan, N Y
Broomell, Schmidt & Steacy Co, York, Pa

**Electric Storage Batteries.**
Electric Storage Battery Co, Philadelphia

**Elevators.**
Marine Engine & Machine Co, 1123 Broadway, N Y
Morse Elevator Works, Philadelphia
Otis Elevator Co, 71 Broadway, N Y

**Employment Bureaus.**
Brotherhood Steam Shovel & Dredge Engrs., Chicago
Cleveland Engineering Agency, Box 71, Sta. B, Cleve
Engineering Agency, Monadnock blk, Chicago, Ill
Engineering Employment Bureau, Syracuse N Y
Hapgood Bureau, 257 Broadway, N Y
New York Engineering Agency, 35 Warren st, N Y
Yuzzolino, N, 73 Mulberry st, New York

**Engines.** (Gas and Gasoline).
American Well Works, Aurora, Ill
Backus Water Motor Co, Newark, N J
Chase Machine Co, Cleveland
Dayton Globe Iron Work Co, 7 Ludlow st, Dayton, O
Fairbanks, Morse & Co, Chicago, Ill
Loomis-Pettibone Gas Machy Co, 52-54 William st, NY
Mansfield, H E, & Co, 136 Liberty st, New York
Mietz & Weiss, 128 Mott st, New York
New Era Iron Works Co, 31 Dale ave, Dayton, O
Otto Gas Engine Works, Philadelphia, Pa
Snow, T W, (Otto Engine) 380 Dearborn st, Chicago
Springfield Gas Engine Co, Springfield, O
Temple Pump Co, 15th Place, Chicago
U. S. Wind Eng. & Pump Co, 30 Water st, Batavia, I
(see also Engines, Oil.)

**Engines** (Hoisting).
American Hoist & Derrick Co, St. Paul, Minn
Bacon, Earle C, 26 Cortlandt st, New York
Beatty, M, & Sons, Welland, Ont
Brown Hoisting Machinery Co, Cleveland, O
Byers, John F., Machine Co, Ravenna, Ohio
Chase Machine Co, Cleveland
Contractors' Plant Mfg Co, 130 Erie st, Buffalo, N Y
Fairbanks, Morse & Co, Chicago, Ill

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Flory, S, Mfg Co, Bangor, Pa
Hunt, C W., Co, Richmond Terrace, W N Brighton, N Y
Lambert Hoisting Engine Co, Newark, N J
Lidgerwood Mfg Co, 96 Liberty st, New York
Monighan's Machine Works, 813 Carroll ave, Chicago
Mundy, J S, Newark, N J
Potter Mfg Co. 2019 N W ave, Indianapolis, Ind
Rawson & Morrison Mfg Co, Cambridgeport, Mas
Sullivan Machinery Co, 135 Adams st, Chicago
Vulcan Iron Works, Wilkesbarre, Pa
(see also Electric Hoists.)

**Engines** (Marine).
Buffalo Forge Co. Buffalo, N Y
Kingsford Foundry & Machine Works, Oswego N Y
Morris Machine Works, Baldwinsville, N Y
Otto Gas Engine Works, Philadelphia, Pa

**Engines** (Oil)
Aultman Co, Canton, Ohio
Mietz & Weiss, 128 Mott st, New York

**Engines** (Portable).
Buffalo Pitts Steam Roller Works, Buffalo, N Y
Port Huron Engine Co. Port Huron, Mich

**Engines** (Steam).
Allis-Chalmers Co. Home Ins bldg, Chicago
Buffalo Forge Co, Buffalo, N Y
Erie Pump & Engine Co, Erie, Pa
Fairbanks, Morse & Co, Chicago
Featherstone Fdy & Mach Co, 348 N. Halsted, Chicag
Harrisburg Foundry & Mach Co, Harrisburg, Pa
Lawrence Machine Co, Lawrence, Mass
Leffel, Jas. & Co, Springfield, O
Maxfield, H E, & Co, 126 Liberty st, New York
Minneapolis Steel Mach'y Co, Minneapolis, Minn
Morris Machine Works, Baldwinsville, N Y
Southwark Foundry & Machine Works, Philadelphia
Sturtevant, B F, Co, Boston, Mass
Strothers, Wells & Co. Warren, Pa
Sullivan Machinery Co, 135 Adams st, Chicago
Vulcan Iron Works, Wilkesbarre Pa

**Engines** (Traction).
Aultman Co, Canton, O
Heisler, Chas. L, Erie, Pa
Kelly O S Co Springfield, O
Port Huron Engine Co. Port Huron, Mich

**Excavators and Excavating Machinery**
(see Ditching and Excavating Machinery and Steam Shovels.)

**Exhaust Heads**
Burt Mfg Co, Akron, O

**Expanded Metal.**
Assoc Exp Metal Cos. Room 1209, 256 Broadway, N Y
General Fireproofing Co, Youngstown, O
Truss Metal Lath Co, 40 Gold st, New York
Youngstown Iron & Steel Roofing Co, Youngstown, O

**Explosives.**
Explosives Mfg Co, Elmira, N Y
Electric Exploder Co, 120 Liberty st, N Y
Kirk, Arthur & Son, Co, 916 Duquesne Way, Pittsburg

**Faucets.**
Campbell, J B, Brass Works, Cascade st, Erie, Pa

**Feed Water Heaters.**
Allis-Chalmers Co, Home Ins bldg, Chicago
Erie Machine Shops, Erie, Pa
Gem City Boiler Co, Dayton, O
Green Fuel Economizer Co, Matteawan, N Y
Harrison Safety Boiler Wks, 3166 N 17th st, Phila
Patterson, Frank L, & Co, 25 Church st, New York
Robertson, Jas. L, & Sons 192 Fulton st, New York
Stilwell-Bierce & Smith-Vaile Co, Dayton, O

**Feed Water Purifiers.**
Industrial Water Co, 126 Liberty st, New York
Pittsburg Filter Mfg Co, Pittsburg, Pa
Smith, W B, Perth Amboy, N J

**Fencing.** (Wire).
American Steel & Wire Co, New York & Chicago
International Fence & Fireproofing Co, Columbus, O
Lamb Wire Fence Co Adrian, Mich

**Fillet.** (Leather).
Butler, A G, 284 Pearl st, New York

**Filing Cases.**
Art Metal Construction Co. Jamestown, N Y
General Fireproofing Co, Youngstown, O

**Filter Presses.**
Stilwell-Bierce & Smith-Vaile Co, Dayton, Ohio

**Filters.**
Stilwell-Bierce & Smith-Vaile Co, Dayton, O
Deutsch, W M, 141 Broadway, N Y
Jackson Filter Mfg Co, St Louis
Loomis-Manning Filter Co, Philadelphia, Pa
N Y Continental-Jewell Co, 15 Broad st, N Y
Norwood Engineering Co, Florence, Mass
Pittsburg Filter Mfg Co, Pittsburg, Pa
Ross Valve Co, Troy, N Y
Scaife, Wm. B, & Sons Co, Pittsburg

**Filters** (Oil).
Burt Mfg Co, Akron, O
Robertson, Jas L, & Sons, 92 Fulton st, New York

**Fire Department Supplies.**
Morse, Andrew J, & Son, 140 Congress st, Boston, Mass

**Fire Proofing.**
Aberthaw Construction Co, Boston, Mass
Berger Mfg Co, Canton, O
Bromley, A H, Jr, 112 N Broad st, Philadelphia
Hennebique Patents 1123 Broadway, N Y
Metropolitan Fire Proofing Co, Trenton, N J
Ransome Concrete Machinery Co, 11 Broadway, N Y
Ransome & Smith Co, 11 Broadway, N Y
Roebling Construction Co, 121 Liberty st, New York
St Louis Expanded Metal Fireproofing Co, St Louis
Wight, W N, & Co, 160 Fifth ave, New York
(see also Expanded Metal, also Concrete Steel Construction)

**Fire Proofing** (Hollow Tile).
Maurer, Henry & Sons, 422 E 23d st, New York

**Fire Proofing** (Wood).
Electric Fireproofing Co, 19th st, and East River, N Y

**Fittings** (Flanged).
McLeod Co. 95 Liberty st, New York

**Flexible Pipe Joint.**
Falcon, Jos. G, 1110 Ayres Court, Evanston, Ill
Holmes, A L, Grand Rapids, Mich

**Flexible Shafts.**
Stow Flexible Shaft Co, 16th & Callowhill sts, Phila
Stow Mfg Co, Binghamton, N Y

**Flue Lining** (Fire Clay).
Jackson, John H, Albany, N Y
Monmouth Mining & Mfg Co, Monmouth, Ill
New York Pottery Co, 12th ave & 36th sts, N Y

**Flush Tanks.**
Pacific Flush Tank Co, 48 La Salle st, Chicago Ill

**Fly Wheels.**
Poole, Robert, & Son Co, Baltimore, Md

**Forges** (Portable).
Buffalo Forge Co, Buffalo, N Y
Roots, P H & F M, Co, Connersville, Ind
Tate, Jones & Co, Pittsburg Pa

**Forgings.**
Albree, Chester B, 14-30 Market st, Allegheny, Pa
Baker, Jas H, Mfg Co, 508 Park bldg, Pittsburg, Pa
Brill, J G, Co, Philadelphia, Pa
Cleveland City Forge & Iron Co, Cleveland
Keystone Drop Forge Wks, 2001-65 Clearfield st, Phila
Pennsylvania Steel Co, Steelton, Pa

**Friction Clutches.**
Brown Hoisting Machinery Co, Cleveland
Dodge Mfg Co, Mishawaka, Indiana
Link Belt Engineering Co, Nicetown, Philadelphia
Smith, S Morgan, Co, York, Pa

**Frogs, Switches and Crossings.**
Elliot Frog & Switch Co. East St. Louis, Ill
Koppel, Arthur, 66-68 Broad st, N Y
N Y Switch & Crossing Co, Hoboken, N J
Pennsylvania Steel Co, Steelton, Pa
Ramapo Iron Works, Hillburn, N Y
Weir Frog Co, Cincinnati, Ohio

**Fuel Economizers** (see Economizers).

**Furnaces**
American Gas Furnace Co, 23 John st, New York
Parson Mfg Co 320 Broadway, N Y
Petroleum Iron Works Washington, Pa
Tate, Jones & Co, Empire bldg, Pittsburg

**Furniture** (Steel).
General Fireproofing Co, Youngstown, O
Hein Furniture Co, Toledo, O

**Gages** (Steam).
Crosby Steam Gage & Valve Co, Boston

**Galvanized Iron and Steel.**
Am Sheet Steel Co Battery Park bldg, New York

**Galvanizing Kettles.**
Columbiana Boiler Co Columbiana, Ohio
Enterprise Boiler Co, Youngstown, Ohio

**Garbage Dump Carts** (see Wagons and Carts).

**Garbage Furnace.**
Morse-Boulger Destructor Co, 39 Cortlandt st, N Y
Smith-Siemens Garbage Furnace, 141 Broadway, N Y

**Gas Exhausters.**
Connersville Blower Co, Connersville, Ind

**Gas Fittings**
Campbell, J B, Brass Works, Cascade st, Erie, Pa

**Gas Holders.**
Wood, R D, & Co, 400 Chestnut st, Philadelphia
(see also Stand-Pipes and Tanks.)

**Gas Machinery.**
American Gas Furnace Co, 23 John st, New York
Gas Machinery Co, Cleveland, O
Loomis-Pettibone Gas Machy Co, 52-54 William st, NY
National Drill & Mfg Co, Chicago, Ill
Norwalk Iron Works, South Norwalk, Conn
Parson Mfg Co, 320 Broadway, N Y
Roots, P H, & F M, Co, Connersville, Ind
Wood, R D, & Co, Philadelphia, Pa

**Gas Works.**
Gas Machinery Co, Cleveland, Ohio

**Gaskets.**
McCord & Co, 1445 Old Colony bldg, Chicago
U. S. Mineral Wool Co, 143 Liberty st, New York

**Gates** (Railway).
International Fence & Fireproofing Co. Columbus, O
Pneumatic Signal Co, 1122 Broad-Exchange bldg, N Y

**Gearing.**
Caldwell, H W, & Son Co, Chicago
Morse Elevator Works, Philadelphia
Poole, Robert, & Son Co, Baltimore, Md
Smith S. Morgan, Co, York, Pa

**Gear-Wheels.**
Taylor Iron & Steel Co, High Bridge, N J

**Gloves** (Hand Made).
Luther, J P, Glove Co, 526 Pearl St, Berlin, Wis

**Governors** (Water Wheel).
Lombard Governor Co, 36 Whittier st, Boston
Replogle Governor Works, Chestnut st, Akron, O

**Graders.**
Austin Mfg Co Manhattan bldg, Chicago
National Drill & Mfg Co, 159 La Salle st, Chicago
Port Huron Engine Co, Port Huron, Mich
Shuart Grader Co, Oberlin, O
Western Wheeled Scraper Co, Aurora, Ill

**Grain Elevators** (see Tanks, grain storage.)

**Granite** (see Stone, also Paving Blocks).

**Graphite.**
Detroit Graphite Mfg Co, Detroit, Mich
Dixon Jos., Crucible Co, Jersey City, N J
Goheen Mfg Co, Canton, Ohio
Internat'l Acheson Graphite Co, Niagara Falls, N Y

**Grate Bars.**
Dobbie Foundry & Mach Co, 138 Dey st, N Y
Robertson, Jas L, & Sons, 192 Fulton st, New York

**Greenhouses.**
Plenty, Josephus, Jersey City, N J

**Hanger** (Joist).
Clark Co, W J, Salem, Ohio
Duplex Hanger Co, Cleveland, Ohio

**Headlights** (Locomotive).
Brill, J G, Co, Philadelphia
Dressel Ry Lamp Works, 3876 Park ave, New York
Railroad Supply Co, Bedford bldg, Chicago

**Heating and Ventilating** (Steam & Hot Water
American Blower Co, Detroit
Am. District Steam Heating Co, Lockport, N Y
Keeler, E, Co, Williamsport, Pa
Mass. Fan Co., Waltham, Mass

**Hoisting Engines** (see Engines, Hoisting).

**Hoisting and Conveying Machinery.**
Aultman Co, Canton, O
Beatty, M, & Sons, Welland, Ont
Bartlett, C O, & Snow Co, Cleveland, O
Brown Hoisting Machinery Co, Cleveland, O
Byers, John F, Machine Co, Ravenna, O
Caldwell, H W, & Son Co, 17th st & Western ave, Chic
Cresson Co Geo. V, Philadelphia
Carson Trench Machine Co, Boston, Mass
Contractors' Equip Co, 147 W 5th st, Kansas City, Mo
Denver Engineering Works, Denver, Colo
Dodge Mfg Co, Mishawaka, Indiana
Exeter Machine Works, Pittston, Pa
Garland, M, Co, Bay City, Mich
Hunt, C W, Co, Richmond Terrace, W N Brighton NY
Jeffrey Mfg Co, Columbus, Ohio
Kaltenbach & Griess, 1618 Williamson bldg, Cleveland
King Bridge Co, Cleveland, Ohio
Lidgerwood Mfg Co, 96 Liberty st, New York
Lambert Hoisting Engine Co, Newark, N J
Link Belt Engineering Co, Nicetown, Philadelphia
Main Belting Co, 1219 Carpenter st, Philadelphia
Mead, John A, & Co, 7 Broadway, N Y
Pawling & Harnishfeger, 167 Clinton st, Milwaukee
Robins Conveying Belt Co, 14-21 Park Row, N Y
Trenton Iron Co, Trenton, N J
Union Iron Works, Hoboken, N J
United Telpherage Co, 20-22 Broad st, N Y

**Hoists** (Electric).
Denver Engineering Works, Denver, Colo
Hunt, C W, Co, Richmond Terrace, WN Brighton, NY
Lambert Hoisting Engine Co, Newark, N J
Lidgerwood Mfg. Co, 96 Liberty st, N Y
Pawling & Harnischfeger, 167 Clinton st, Milwaukee
Rawson & Morrison Mfg Co, Cambridgeport, Mass
United Telpherage Co, 20-22 Broad st, New York

**Hoists** (Pneumatic).
Chicago Pneumatic Tool Co, Fisher bldg, Chicago
Christensen, N A, 1212-17 Herman bldg, Milwaukee
General Pneumatic Tool Co, Montour Falls, N Y

**Hooks** (Hoist, Grab, etc.)
Baker, Jas. H, Mfg Co, 503 Park bldg, Pittsburg
Roebling's, John A. Sons Co, Trenton, N J

**Hose** (Metal).
Moore Chas. C, & Co, 32 First st, San Francisco

**Hose** (Rubber).
McKiernan Drill Co, 170 Liberty st, N Y

**Hose** (Suction).
Edson Mfg Co, 255 Atlantic ave, Boston

**Hydrants and Valves.**
Bourbon Copper & Brass Works, Cincinnati, O
Cayuta Wheel & Foundry Co. Sayre, Pa
Chapman Valve Mfg Co, Indian Orchard, Mass
Clow, J B & Sons, Lake & Franklin sts. Chicago
Coffin Valve Co, Boston, Mass
Coldwell-Wilcox Co, Newburg, N Y
Darling Pump & Mfg Co, Box E, Williamsport, Pa
Dimmick, J K, & Co, 1049-51 Drexel bldg, Phila
Drummond, M J, & Co, 192 Broadway, N Y
Fox, John & Co, 253 Broadway, N Y
Kennedy Valve Mfg Co, 50 Beekman st, N Y
Loetzer Valve & Mfg Co, Towanda, Pa
Ludlow Valve Mfg Co, Troy, N Y
McLean, John, 298 Monroe st, New York
Millar, Chas. & Son, Co, Utica, N Y
Norwood Engineering Co, Florence, Mass
Reading Foundry Co, Ltd, Reading, Pa
Ross Valve Co, Troy, N Y
Smith, A P, Mfg Co, Newark, N J
Thompson, J, & Co, Philadelphia, Pa
Wood, R D, & Co, Philadelphia, Pa

**Hydraulic Jacks.**
Watson-Stillman Co 210 E. 43d st, New York

**Hydraulic Leather Packing.**
Darling Pump & Mfg Co, Box E, Williamsport, Pa
Detroit Leather Specialty Co, 900 Michigan av, Detroit

**Hydraulic Machinery.**
Dayton Globe Iron Work Co, 7 Ludlow st, Dayton, O
Deming Co, Salem, Ohio
Pelton Water Wheel Co 134 Main st, San Francisco
Power Specialty Co, 126 Liberty st, New York
Watson-Stillman Co, 210 E 43d st, New York
Wood, R D, & Co, Philadelphia, Pa

**Hydraulic Presses.**
Power Specialty Co, 125 Liberty st New York
Watson-Stillman Co, 204 E 43d st, New York
Wood, R D & Co, 400 Chestnut st, Philadelphia

**Hydraulic Rams.**
Pelton Water Wheel Co, 134 Main st, San Francisco
Power Specialty Co, 126 Liberty st, New York

**Ice and Refrigerating Machinery.**
Featherstone Fdy & Mach Co. 348 N Halsted, Chicago

**Indicators** (Steam Engine).
Ashcroft Mfg Co, 85 Liberty st, New York
Crosby Steam Gage & Valve Co, Boston, Mass
Robertson, Jas L. & Sons, 192 Fulton st, N Y

**Injectors.**
Hayden & Derby Mfg Co. 85 Liberty st, New York
Lunkenheimer Co. Cincinnati, Ohio
Parson Mfg Co, 320 Broadway, N Y

**Instruments** (Engineering, Drafting).
Ainsworth, Wm. & Sons. Denver Colorado
Aloe, A S, Co, 414 N Broadway, St. Louis, Mo
Alteneder, Theo, & Sons, 945 Ridge ave, Phila, Pa
Archts' & Engrs' Supply Co, 1011 Walnut st, Kan. City
Beckman, L, 57 Adams st Toledo, Ohio
Berger, C L, & Sons, 37 Williams st, Boston, Mass
Brandis, F E, Sons & Co, 814 Gates ave, Brooklyn, NY
Brown & Sharpe Mfg Co, Providence, R I
Buff & Buff Co, J P Station, Boston, Mass
Dietzgen, Eugene, Co, 181 Monroe st, Chicago
Engineers' Instrument Exchange, Scranton, Pa
Gurley, W & L E, Troy, N Y
Hardtmuth, L & C, 49 Barclay st, New York
Heller & Brightly Spring Garden st & Ridge av, Phila
Hetterschied Mfg Wks, Grand Rapids, Mich
Keuffel & Esser Co, 127 Fulton st New York
Knight, F C, & Co, 400 Locust ave, Philadelphia Pa
Koelsch & Co, 138 Fulton st, New York
Ledder, G G. 302 School st, Boston
Lietz, A, Co, 422 Sacramento st, San Francisco, Cal
Mahn & Co. 300-302 Olive st, St. Louis
Pfister, Herm, 428 Plum st, Cincinnati, O
Prince, L M, 108 West 4th st, Cincinnati, O
Queen & Co, Inc, Philadelphia, Pa
Saegmuller, G N, Washington, D C
Sala, J C, 429 Montgomery st, San Francisco
Schwencke, Kirk & Co, 26 Church st, New York
Soltmann, E G, 123 E 42d st, New York
Stackpole & Bro, 39 Fulton st, New York
Stanley, W F, & Co, Great Turnstile, Holborn, London
Ulmer, J C, & Co, 224 Champlain st, Cleveland, Ohio
Universal Drafting Mach Co, Blackstone bldg, Cleve
Weber, F, & Co, Philadelphia
Williams, Brown & Earle, 918 Chestnut st, Phila
Wittstock, P & R, Berlin, S. 59, Germany
Young & Sons, 43 N. 7th st, Philadelphia

**Insulating Materials.**
Standard Paint Co, 103 William st, New York

**Iron Work** (Ornamental).
Albree, Chester B, 14-30 Market st, Allegheny, Pa
Belmont Iron Works, Philadelphia Pa
Brooks, T H, & Co, Cleveland, O
Rogers Iron Co, Springfield, O
Schrieber, L, & Sons Co, Cincinnati, O
Snead & Co Iron Works, ft of Pine st, Jersey City, N J
Walton Iron Co, Cincinnati, O

**Iron Work** (Structural).
(see Structural Steel and Iron Work.)

**Jacks**
Duff Mfg Co, Allegheny, Pa
Norton, A O, 286 Congress st, Boston
Watson-Stillman Co, 210 E 43d st, N Y

**Labor** (Italian).
Italo-American Trust Co, 725 Carpenter st, Phila
Julian Bros, 110 Mott st, New York
Vuzzolino, N, 73 Mulberry st, New York
(See Employment Bureaus).

**Laboratories** (Chemical and Testing).
Booth, Garrett & Blair, Philadelphia, Pa
Hunt, R W, & Co, Rookery, Chicago
McKenna, Chas F, 221 Pearl st, New York
Pittsburg Testing Laboratory, Pittsburg, Pa
Riehle Bros. Test & Machine Co, Philadelphia, Pa

**Lamps** (Electric).
General Electric Co, Schenectady, N Y
Westinghouse Electric & Mfg Co, Pittsburg

**Lathing** (Metallic).
Berger Mfg Co, Canton, O
General Fireproofing Co, Youngstown, O
(see also Fireproofing.)

**Lead** (Pig).
Millar, Chas & Son Co, Utica, N Y
Ogden, J Edward Co, 147 Cedar st, New York

**Lead Furnaces.**
McLean, John, 298 Monroe st, New York
Ogden, J Edward Co, 147 Cedar st, New York
Union Iron Works, Hoboken, N J

**Light** (Contractors').
Kitson Hydro-Carbon Htg & Lighting Co, Phila
Macleod & Co, Walter, Cincinnati Ohio
Wells Light Co, 44 Washington st, New York

**Locomotive Tires.**
Latrobe Steel Co, 1200 Girard bldg, Philadelphia, Pa

**Locomotives.**
American Locomotive Co, 25 Broad st, New York
Baldwin Locomotive Works, Philadelphia, Pa
Heisler, Charles L, Erie, Pa.
Porter, H K Co .Pittsburg, Pa.

**Locomotives** (Contractors').
Avery, C F, 114 Liberty st, New York
Byers, John F, Machine Co, Ravenna, Ohio
Fitz-Hugh & Co, Chicago and New York
Porter, H K, Co, Pittsburg, Pa
Vulcan Iron Works, Wilkesbarre, Pa

**Locomotives** (Electric and Mining).
Baldwin Locomotive Works, Philadelphia, Pa
Brill, J G, Co, Philadelphia
General Electric Co, Schenectady, N Y
Jeffrey Mfg Co, Columbus, O
Koppel, Arthur, 66 Broad st. New York
Patton & Co, J. R., House bldg, Pittsburg, Pa
Porter, H K, Co, Pittsburg, Pa
Westinghouse Electric & Mfg Co, Pittsburg

**Locomotive Headlights.**
(see Headlights, Locomotives.)

**Locomotives** (Second hand).
(See Railway Equipment, Dealers.)

**Lubricants.**
Dixon, Jos, Crucible Co, Jersey City, N J

**Lubricators.**
Crane Co, Chicago, Ill
Lunkenheimer Co, Cincinnati, Ohio

**Lumber** (Creosoted).
American Creosote Works, Ltd, New Orleans, La
Atlantic Creo & Wood Pres Wks, 10 Bridge St, N Y
Carbolineum Wood Pres Co, 13 Park Row, N Y
International Creosoting & Con Co, Galveston, Tex
Norfolk Creosoting Co, Norfolk, Va
Wyckoff Pipe & Creosoting Co. Stamford, Conn
(see also Creosoting)

**Lumber** (Dock).
Vanderbilt & Hopkins, 126 Liberty st, New York

**Machinery** (Second hand).
Braden, Jas A, 514 Park Row bldg, New York
Briggs, Marvin, 12 Broadway, New York
Carlin Machy & Supply Co, 186 Lacock st, Allegheny
Carlin, W J, 34th st & A V R R, Pittsburg, Pa
Chicago House Wreck Co, W. 35th & Iron sts, Chicago
Contractors' Supply Co. 1531 Monadnock blk Chicago
Contractors' Plant Depot, 27 William st, New York
Driscoll, J T., McCormick bldg Chicago
Fitz-Hugh Co, Monadnock block, Chicago
[illegible] Machy Co, Park Row bldg, New York
Kaiser, A V, & Co, 8 2 So 3d st, Phila, Pa
[illegible] Empire bldg, Pittsburg
Saxton, J C, 18 Broadway, New York
Troy Public Works Co, 1 Mann bldg, Utica, N Y
Whitney, O R, 39 Cortlandt st, New York

**Machine Tools.**
Manning, Maxwell & Moore, 85 Liberty st, New York
Niles Tool Works Co, 136-138 Liberty st, New York

**Mail Chutes.**
Cutler Mfg Co, Rochester, N Y

**Manholes and Covers.**
(See Sewer and Street Castings; also Castings, Iron.)

**Measure** (Rotary).
Steckenreiter Mfg Co, 98 Lake st, Chicago, Ill

**Measuring Tapes.** (Steel).
Chicago Steel Tape Co, 808 Temple Court, Chicago
Johnston, Robt, Wilkesbarre, Pa
Keuffel & Esser, 127 Fulton st, New York
Lufkin Rule Co, Saginaw, Mich
Starrett, L S, Co, 86 Crescent st, Athol, Mass

**Merchandise Checks.**
Am. Ry Supply Co, 24 Park Place, New York

**Mechanical Draft.**
American Blower Co, Detroit
Buffalo Forge Co, Buffalo, N Y
Sturtevant, B F, Co, Boston, Mass
(see also Blowers.)

**Metal Hose** (See Hose, Metal).

**Meters** (Current).
Berger, C L, & Sons, 9 Province st, Boston, Mass

**Meters** (Electric).
General Electric Co, Schenectady, N Y
Westinghouse Electric & Mfg Co, Pittsburg

**Meters** (Gas).
Pittsburg Meter Co East Pittsburg, Pa

**Meters** (Water).
Buffalo Meter Co, 363 Washington st, Buffalo
Builders Iron Foundry, Providence, R I
Cole, E S, 135 Park Row bldg, New York
Hersey Mfg Co, Boston, Mass
Neptune Meter Co, 253 Broadway, New York
Pittsburg Meter Co, East Pittsburg, Pa
Thomson Meter Co, 79 Washington st, Brooklyn, N Y
Union Water Meter Co, Worcester, Mass
Worthington, Henry R, Brooklyn, N Y

**Mining Machinery and Equipment.**
Allis-Chalmers Co, Home Ins bldg, Chicago
American Diamond Rock Drill Co, 95 Liberty st N Y
Blanton E A, Jr, The Bourse, Philadelphia
Bradley Pulverizer Co, 92 State st, Boston, Mass
Bucyrus Co, S. Milwaukee, Wis
Fairbanks, Morse & Co, Chicago
General Electric Co, Schenectady, N Y
Jeffrey Mfg. Co, Columbus, O
Lidgerwood Mfg Co, 96 Liberty st, N Y
Marion Steam Shovel Co, Marion, Ohio
Philips Mine and Mill Supply Co, Pittsburg, Pa
Rand Drill Co, 128 Broadway, N Y
Sullivan Machinery Co, 135 Adams st, Chicago, Ill
Vulcan Iron Works, Wilkesbarre, Pa

**Mortar Mixers.**
Drake, C T, 300 W Jackson Boulevard, Chicago

**Motors** (Electric). (see Dynamos.)
Loomis Pettibone Gas Machy Co, 52-54 William st, NY

**Non-Conducting Covering.**
U S Mineral Wool Co, 143 Liberty st, New York

**Nut Locks.**
National Elastic Nut Co, Milwaukee, Wis

**Oil Burners.**
Hammel, C A, 120 Fifth st, Los Angeles, Cal

**Oil Cups.**
Crane Co, Chicago, Ill
Lunkenheimer Co, Cincinnati, Ohio

**Oil Mill Machinery.**
Stilwell-Bierce & Smith-Vaile Co, Dayton, Ohio

**Oilless Bearings.**
No Am Metaline Co, 6 West av, Long Island City, N Y

**Ore Handling Machinery.**
(see Coal and Ore Handling Machinery.)

**Packing.**
Detroit Leather Specialty Co, 900 Michigan av, Detro
Robertson, Jas L, & Sons, 192 Fulton st, New York

**Painting Machines** (Pneumatic).
Hook, F E, Hudson, Mich
Macleod & Co, Walter, Cincinnati, O

**Paint Pigment.**
Internat'l Acheson Graphite Co, Niagara Falls N Y

**Paints.**
Carbolineum Wood Pres Co, 13 Park Row, N Y
Chilton Paint Co, 69 Cortlandt st, N Y
Detroit Graphite Mfg Co, Detroit, Mich
Dixon, Jos, Crucible Co, Jersey City, N Y
Goheen Mfg Co, Canton, Ohio
Heath & Milligan Mfg Co, Chicago
Hook, F E, Hudson, Mich
Rinald Bros, 1142 N Hancock st, Philadelphia
Sicilian Asphalt Paving Co, Times bldg, New York
Standard Paint Co, 103 William st, New York
Toch Bros, New York
Zibell Damp-Resisting Paint Co, 210 Front st, N Y

**Paint** (Cold Water).
Bird & Co, J A & W, 10 Well st, Boston

**Patent Attorneys.**
Hill, Thos A, 261 Broadway, New York
Straley, Hasbrouck & Schloeder, 257 Broadway, N Y

**Pattern Letters.**
Butler, A G, 284 Pearl st, New York

**Paving** (Bituminous-Macadam).
Warren Bros Co, 93 Federal st, Boston

**Paving Blocks** (Stone).
Leopold, J, & Co, 18 Broadway, New York
(See also Stone.)

**Paving Brick** (see Brick).

**Perforated Metals.**
Harrington & King Perforating Co, Chicago, Ill

**Pile Driving Machinery.**
American Hoist & Derrick Co, St. Paul, Minn
Beatty, M, & Sons, Welland, Ont
Bucyrus Co, South Milwaukee Wis
Contractors' Plant Mfg Co, Buffalo, N Y
Lidgerwood Mfg Co, 96 Liberty st, N Y
Mundy, J S, Newark, N J
Toledo Foundry & Machine Co, Toledo, Ohio
Vulcan Iron Works, Chicago, Ill

**Pile Hammers.**
Vulcan Iron Works, Chicago, Ill

**Piling.**
American Creosote Works, Ltd, New Orleans, La
Atlantic Creosot. & Wood Pres. Co, 10 Bridge st, N Y
Eppinger & Russell Co, 66 Broad st, New York
Meredith J P, Memphis, Tenn
New Orleans Wood Preserving Works, New Orleans
Norfolk Creosoting Co, Norfolk, Va
Southern Creosoting Co, Slidell, La
Wyckoff Pipe & Creosoting Co, Stamford, Conn

**Pipe** (Cast Iron).
Builders Iron Foundry, Providence, R I
Byers, John F, Machine Co, Ravenna, Ohio
Clow, J B, & Sons, Lake and Franklin sts, Chicago
Dimmick Pipe Co, Birmingham, Ala
Dimmick, J K, & Co, 1049-51 Drexel bldg, Phila
Donaldson Iron Co, Emaus, Pa
Drummond, M J, & Co, 192 Broadway, New York
Fox, John, & Co, 253 Broadway, New York
Massillon Iron & Steel Co, The Rookery, Chicago
Millar, Chas, & Son Co, Utica, N Y
Reading Foundry Co, Ltd, Reading, Pa
Snow, T W, 360 Dearborn st, Chicago, Ill
U S Cast Iron Pipe & Fdry Co, 217 La Salle st, Chicago
Warren Foundry & Machine Co, 160 Broadway, N Y
Wood, R D, & Co, Philadelphia, Pa

**Pipe** (Culvert). See Pipe, Vitrified Clay.

**Pipe** (Lead).
Millar, Chas, & Son Co, Utica, N Y

**Pipe** (Riveted Steel).
Carroll-Porter Boiler & Tank Co, Pittsburg, Pa
Columbiana Boiler Co, Columbiana, Ohio
Gillespie, T A, Co, Pittsburg, Pa
Keeler, E, Co, Williamsport, Pa
McNeil, Jas, & Bro, 29th & Railroad sts, Pittsburg Pa
Means & Fulton Iron Works, Birmingham, Ala
Pelton Water Wheel Co, 134 Main st, San Francisco
Scaife, Wm B, & Sons Co, Pittsburg, Pa
Tallerday Steel Pipe & Tank Co, Waterloo, Ia
Warren City Tank & Boiler Works, Warren, O
Weigele Riveted Steel Pipe Works, Denver, Colo

**Pipe** (Spiral Riveted).
Abendroth & Root Mfg Co, Newburgh, N Y
Am Spiral Pipe Works, 64-66 Wabash ave, Chicago

**Pipe** (Vitrified Clay).
American Sewer Pipe Co, Pittsburg, Pa
Blackmer & Post Pipe Co, St Louis, Mo
Dickey, W S, Clay Mfg Co, Kansas City, Mo
Evens & Howard Fire Brick Co, St Louis, Mo
Illinois Mfg Co, Macomb, Ill
Jackson, John H, Albany, N Y
Millar, Chas, & Son Co, Utica, N Y
Monmouth Mining & Mfg Co, Monmouth, Ill
New York Pottery Co, 12th ave & 36th st, N Y
Robinson Bros & Co, Akron, O
Standard Sewer Pipe Co, Rochester, N Y

# ADVERTISERS' CLASSIFIED DIRECTORY.

**Pipe** (Wooden).
American District Steam Co, Lockport, N Y
Excelsior Wooden Stave Pipe Co, San Francisco
Wyckoff Pipe & Creosoting Co, Stamford, Conn

**Pipe** (Wrought Iron).
Crane Co, Chicago, Ill
Fox, John & Co, 253 Broadway, New York
National Tube Co, Pittsburg
Pittsburg Pipe & Iron Co, Allegheny, Pa
California Redwood Pipe Co, Los Angeles

**Pipe Casing.**
U S Mineral Wool Co, 143 Liberty st, New York

**Pipe Cutting and Threading Machines.**
Saunder's, D, Sons, Yonkers, N Y

**Pipe Fittings and Flanges.**
Crane Co, Chicago, Ill
Darling Pump & Mfg Co, Box E, Williamsport, Pa
Latrobe Steel Co, Girard bldg, Philadelphia
National Tube Co, Pittsburg
Thompson, J, & Co, Van Horn & Sophia sts, Phila P
Tight Joint Co, 306-310 East 47th st, New York
Walworth Mfg Co, Boston

**Pipe Joint** (High Pressure).
Tight Joint Co, 306-310 East 47th st, New York
Walworth Mfg Co, Boston

**Pipe Jointers.**
Watkins, Thos, Johnstown, Pa

**Pipe Laying** (Submarine).
Falcon, Jos G, 1110 Ayers Court, Evanston, Ill
Holmes, A L, Grand Rapids, Mich

**Pipe Line Supplies.**
Ogden, J Edward Co, 147 Cedar st, New York

**Pipe Tapping Machines** (see Tapping Machines)

**Plaster.**
Rock Plaster Co, 11 Broadway, N Y

**Plows** (see Scrapers and Plows).

**Plumbers' Supplies.**
Campbell, J G, Bras Works, Cascade st, Erie, Pa
Clow, J B, & Sons, Lake and Franklin sts, Chicago
Millar, Chas, & Son, Utica, N Y

**Pneumatic Tools.**
Chicago Pneumatic Tool Co, Fisher bldg, Chicago
Columbus Pneumatic Tool Co, Columbus, Ohio
General Pneumatic Tool Co., Montour Falls, N Y
Helwig Mfg Co, St Paul, Minn
Philadelphia Pneumatic Tool Co, Philadelphia
Slocomb, F F, & Co, Wilmington, Del
(see also Riveting Machines)

**Poles** (Wooden)
(see Piling.)

**Portable Light** (see Light, Contractors').

**Portable Tracks.**
Hunt, C W, Co, Richmond Terrace, W N Brighton, NY
Koppel, Arthur, 68 Broad st, New York
Wonham-Magor Eng. Wks, 29 Broadway, New York

**Power Hammers.**
Merrill Bros, 467 Kent ave, Brooklyn, N Y

**Power Transmission** (Electric).
General Electric Co, Schenectady, N Y
Leffel, Jas, & Co, Springfield, O
Felton Water Wheel Co, 134 Main st, San Francisco
Westinghouse Electric & Mfg Co, Pittsburg

**Power Transmission** (Rope).
Caldwell, H W, & Son Co, 17th st & Western ave, Chic
Case Mfg Co, Columbus, O
Cresson, Geo V, Co, Philadelphia
Dodge Mfg Co, Mishawaka, Indiana
Hunt, C W, Co, Richmond Terrace, W N Brighton, NY
Jeffrey Mfg Co, Columbus, O
Link Belt Engineering Co, Nicetown, Phila

**Pressure Gages** (Recording)
Bristol Co, Waterbury, Conn

**Pressure Regulators**
d'Estè, Julian, Co, 15 Canal st, Boston
Foster Engineering Co, Newark, N J
Union Water Meter Co, Worcester, Mass

**Pulleys.**
Case Mfg Co, Columbus, O
Dodge Mfg Co, Mishawaka, Indiana

**Pulverizers** (Ore and Cement).
Allis-Chalmers Co, Home Ins bldg, Chicago
Bradley Pulverizer Co, 93 Lincoln st, Boston, Mass
Clark J C, Box 525, Atlanta, Ga
Cresson, Geo V, Co, Philadelphia
Kent Mill Co, 170 Broadway, New York
Newell Mfg Co, 149 Broadway, New York
Smidths F L & Co, 66 Maiden lane, New York

**Pumps and Pumping Machinery.**
Allis-Chalmer Co, Home Ins bldg, Chicago
American Well Works, Aurora, Ill
Barr Pumping Engine Co, Philadelphia
Blake, Geo F, Mfg Co, 91 Liberty st, New York
Bonnot Co, Canton, Ohio
Cameron, A S, Steam Pump Works, New York
Clow, J B, & Sons, Lake and Franklin sts, Chicago
Cook Well Co, St Louis
d'Auria Pumping Engine Co, 941 Drexel bldg, Phila
Davidson, M T, 92 Keap st, Brooklyn, N Y
Dean Bros' Steam Pump Works, Indianapolis, Ind
Deane Steam Pump Co, Holyoke, Mass
Deming Co, Salem, Ohio
Downie Pump Co, Downieville, Pa
Edwards, Jos, & Co, 414 Water st, New York
Epping-Carpenter Co, Pittsburg
Fairbanks, Morse & Co, Chicago
Flint & Walling Mfg Co, Kendallville, Ind
Goulds Mfg Co, Seneca Falls N Y
Guild & Garrison, So 10th st, Brooklyn, N Y
Hill Machine Co, Anderson, Ind
Heisler Pumping Engine Co, Erie, Pa
Knowles Steam Pump Works, 81 Liberty st, N Y
Laidlaw-Dunn-Gordon Co, Cincinnati, O
Lawrence Machine Co, Lawrence, Mass
McGowan, John H, Co, Cincinnati, Ohio
Norwalk Iron Works Co, South Norwalk, Conn
Pulsometer Steam Pump Co, 135 Greenwich st, N Y
Quimby, Wm E, 141 Broadway, N Y
Roots, P H & F M, Co, Connersville, Ind
Scranton Steam Pump Co, 151 Franklin ave, Scranton
Snow Steam Pump Works, 120 Liberty st, New York
Southwark Foundry & Machine Works, Philadelphia
Stilwell-Bierce & Smith-Vaile Co, Dayton, Ohio
U S Wind Engine & Pump Co, Batavia, Ill
Wood, P K, 209 No Main st, Los Angeles, Cal
Wood, R D, & Co, Philadelphia
Worthington, Henry R, Brooklyn, N Y

**Pumps** (Air Lift).
Bacon Air Lift Co, 100 Broadway, New York
Ingersoll-Sergeant Drill Co, Havemeyer bldg, N Y
Pneumatic Engineering Co, 128 Broadway, N Y
Union Steam Pump Co, Battle Creek, Mich

**Pumps** (Artesian Well).
Davidson, M T, 141 Broadway, New York
Downie Pump Co, Downieville, Pa
Wood, P K, 209 No Main st, Los Angeles, Cal

**Pumps** (Centrifugal).
Baldwinsville (N Y) Centrifugal Pump Works
Bucyrus Co, South Milwaukee, Wis
Edwards, Jos, & Co, 414 Water st, New York
Erie Pump & Engine Co, Erie, Pa
Kingsford Foundry & Machine Works, Oswego, N Y
Lawrence Machine Co, Lawrence, Mass
Maxfield, H E, & Co, 136 Liberty st, New York
Morris Machine Works, Baldwinsville, N Y
Temple Pump Co, 15th Place, Chicago
Wood, R D, & Co, Philadelphia

**Pumps** (Diaphragm).
Boston & Lockport Block Co, 160 Commercial st, Boston
Edson Mfg Co, 255 Atlantic ave, Boston

**Pumps** (Electric).
Davidson, M T, 141 Broadway, New York
Deming Co, Salem, Ohio
Goulds Mfg Co, Seneca Falls, N Y
Quimby, Wm. E, 141 Broadway, New York
Stilwell-Bierce & Smith-Vaile Co, Dayton, O
Worthington, Henry R, Brooklyn, N Y

**Pumps** (House Service).
Quimby, Wm E, 141 Broadway, New York

**Pumps** (Mining)
Davidson, M T, 141 Broadway, New York
Goulds Mfg Co, Seneca Falls, N Y
Pneumatic Engineering Co, 128 Broadway, N Y
Pulsometer Steam Pump Co, 135 Greenwich st, N Y
Scranton Steam Pump Co, Scranton, Pa
Snow Steam Pump Works, 120 Liberty st, New York
Stilwell-Bierce & Smith-Vaile Co, Dayton, O
Wood, P K, 209 No Main st, Los Angeles, Cal

**Punching Tools.**
Pels & Co, Henry, 65-68 Broad st, New York

**Pumps** (Rotary).
Connersville Blower Co, Connersville, Ind

**Pyrometers.**
Bristol Co, Waterbury, Conn

**Quarrying Machinery.**
Flory, S, Mfg Co, Bangor, Pa
Ingersoll-Sergeant Drill Co, 26 Cortlandt st, New York
Rand Drill Co, 128 Broadway, New York
Sullivan Machinery Co, 135 Adams st, Chicago
Tyrone Foundry & Machine Co, Tyrone, Pa

**Rack Railways.**
Hildenbrand, Wm, 1 Broadway, New York

**Rail Fastenings.**
Continuous Rail Joint Co of America, Newark, N J
National Elastic Nut Co, Milwaukee
N Y Rail Insulation & Equip Co, 200 Market st, Newark
Weber Ry Joint Mfg Co Cotton Exch bldg, N Y

**Rail Joints.**
Bonzano Rail Joint Co, 22 South 15th st, Philadelphia
Continuous Rail Joint Co of America, Newark, N J
McConway & Torley Co, Pittsburg, Pa
Weber Ry Joint Mfg Co Cotton Exch bldg, N Y

**Rails** (Relaying).
Continental Equipment Co, 5-17 Battery Place, N Y
Donaldson & Newton, 421 Chestnut st, Philadelphia
Grant & Harper Machy Co, Park Row bldg, New York
Hyde Bros, 362 Lewis bldg, Pittsburg
Johnson, Chas F, 908 Ellicott square, Buffalo
Robinson & Orr, 419 Wood st, Pittsburg
Talion, C J, 308 Market st, San Francisco

**Rails** (Steel).
Baumgarten & Bro, A F, Pittsburg, Pa
Buffalo Steel Co, Tonawanda, N Y
General Supply & Const'n Co, 8-10 Bridge st, N Y
Koppel, Arthur, 68 Broad st, New York
Pennsylvania Steel Co, Steelton, Pa

**Railway Equipment** (Dealers).
Apex Equipment Co, 11 Broadway, New York
Davenport Machine Works, Davenport, Ill
Fitz-Hugh & Co, Monadnock bldg, Chicago
Low, Edgar S, Co, Empire bldg, Pittsburg
Males Co, Ætna bldg, Cincinnati
Shannon, J Jacob, & Co, 1744 Market st, Philadelphia
Watson, Benjamin, 66 Beaver st, New York
Wood & Co, 545 Marquette bldg, Chicago, Ill

**Railway Signals** (Pneumatic)
Pneumatic Signal Co, Broad-Exchange bldg, N Y

**Railway Ties.**
American Creosote Works, Ltd, New Orleans La
New Orleans Wood Preserving Works, New Orleans
Vanderbilt & Hopkins, 126 Liberty st, New York
Wyckoff Pipe & Creosoting Co, Portsmouth, Va

**Railway Track Specialties.**
Diamond State Steel Co, Wilmington, De
N Y Switch & Crossing Co, Hoboken, N J
Railroad Supply Co, Bedford bldg, Chicago
Ramapo Iron Works, Hillburn, N Y
Weir Frog Co, Cincinnati, Ohio

**Railways** (Industrial).
Koppel, Arthur, 68 Broad st, New York
Wonham-Magor Eng. Wks, 29 Broadway, New York

**Riveting Machines.**
Albree, Chester B, 14-30 Market st, Allegheny, Pa
Allen, John F, 370 Gerard ave, New York
General Pneumatic Tool Co, Montour Falls, N Y
Manning, Maxwell & Moore, 85 Liberty st, New York
Rand Drill Co, 128 Broadway, New York
Wood, R D, & Co, 400 Chestnut st, Philadelphia Pa
(see also Pneumatic Tools.)

**Road Rollers and Machinery.**
Acme Road Machinery Co, Frankfort, N Y
Austin Mfg Co, F C, Harvey, Ill
Buffalo Pitts Steam Roller Works, Buffalo, N Y
Climax Road Machine Co, Marathon, N Y
Erie Machine Shops, Erie, Pa
Goods Roads Machinery Co, Kennett Square, Pa
Harrisburg Foundry & Mach Co, Harrisburg, Pa
Heisler, Chas L, Erie, Pa
Huber Mfg Co, Marion, Ohio
Iroquois Iron Works, 178 Walden ave, Buffalo, N Y
Kelly-Springfield Road Roller Co, Springfield, O
Oastler, W C, 156 Fifth ave, New York
Port Huron Engine Co, Port Huron, Mich
Scholl, Julian, & Co, 136 Liberty st, New York
Shuart Grader Co, Oberlin, O
Western Wheeled Scraper Co, Aurora, Ill

**Rock and Ore Crushers.**
Acme Road Machinery Co, Frankfort, N Y
Allis-Chalmers Co, Home Ins bldg, Chicago
Austin Mfg Co, F C, Harvey, Ill
Aultman Co, Canton, Ohio
Bradley Pulverizer Co, 92 State st, Boston, Mass
Climax Road Machine Co, Marathon, N Y
Cresson, Geo V, Philadelphia
Farrel Foundry & Machine Co, 26 Cortlandt st, N Y
Good Roads Machinery Co, Kennett Square, Pa
Scholl, Julian, & Co, 136 Liberty st, New York
Smidth, F L, & Co, 66 Maiden lane, New York
Sturtevant Mill Co, 108 Clayton st, Boston
Tyrone Foundry & Machine Co, Tyrone, Pa
Western Wheeled Scraper Co, Aurora, Ill

**Rock Drills** (see Drills, Rock)

**Rolling Doors, Partitions, etc.** (Steel).
Kinnear Mfg Co, Columbus, Ohio
Wilson, J G, 3 W 29th St, New York

**Roofing.**
Standard Paint Co, 103 William st, New York

**Roofing** (Corrugated).
Garry Iron & Steel Co, Coe and Lake sts, Cleveland
Scaife, W B, & Sons Co, Pittsburg

**Rope** (Manila).
Dodge Mfg Co, Mishawaka, Indiana
Hunt, C W, Co, Richmond Terrace, W N Brighton, NY
Smith, S Morgan, Co, York, Pa

**Scales** (Weighing).
Fairbanks, Morse & Co, Chicago
Richardson Scale Co, 13 Park Row, New York

**Schools** (Correspondence).
Am. School at Armour Inst of Tech. Chicago
(For Directory of Engineering Schools see p. 4.)

**Scrapers and Plows.**
Austin Mfg Co, Manhattan bldg, Chicago
Contractors' Plant Mfg Co, Buffalo, N Y
Climax Road Machine Co, Marathon, N Y
Good Roads Machinery Co, Kennett Square, Pa
National Drill & Mfg Co, 156 La Salle st, Chicago
Shuart Scraper Co, Oberlin, O
Smith & Sons Mfg Co, Kansas City, Mo
Syracuse Chilled Plow Co, Syracuse, N Y
Western Wheeled Scraper Co, Aurora, Ill

**Screens** (Stone and Sand).
Allis-Chalmers Co, Home Ins bldg, Chicago
Aultman Co, Canton, O
Climax Road Machine Co, Marathon, N Y
Harrington & King Perforating Co, Chicago, Ill
Taylor Iron & Steel Co, High Bridge, N J

**Screens** (Water-Works).
Coffin Valve Co, Boston, Mass
Coldwell-Wilcox Co, Newburg, N Y

**Seamless Drawn Tanks and Tubes.**
National Tube Co, Pittsburg

**Separators** (Oil and Steam).
Harrison Safety Boiler Wks, 3166 N 17th st, Phila
Robertson, Jas L, & Sons, 192 Fulton st, New York

**Sewage Disposal.**
Cameron Septic Tank Co Monadnock block, Chicago
Hygienic Suburban Sewage Co, 1123 B'way, N Y

**Sewer Braces.**
Dunn Mfg Co, Pittsburg, Pa
Potter Mfg Co, 3010 N W ave, Indianapolis, Ind

**Sewer and Street Castings.**
Sessions Foundry Co, Bristol, Conn
(see also Castings, Iron.)

**Sewer Pipe** (see Pipe, Vitrified)

**Shafting.**
Case Mfg Co, Coinmbus, O
Cresson, Geo V, Philadelphia
Dodge Mfg Co, Mishawaka, Indiana
Poole, Robt, & Son Co, Baltimore, Md

**Sheet Iron Work.**
Am Sheet Steel Co, Battery Park bldg, New York
Petroleum Iron Works Co, Washington, Pa
Scaife, Wm B, & Sons Co, Pittsburg

**Sheet Steel.**
Am Sheet Steel Co, Battery Park bldg, New York
American Steel & Wire Co, New York & Chicago

**Shutters** (Fire Proof).
Kinnear Mfg Co, Columbus, Ohio

**Skylights.**
Plenty, Josephus, Jersey City, N J
Valle & Young, Baltimore, Md

**Sluice Gates.**
Coffin Valve Co, Boston, Mass
Coldwell-Wilcox Co, Newburg, N Y

**Smoke Stacks** (see Stand-Pipes and Tanks).

**Speed Governors.**
Foster Engineering Co, Newark, N J

**Stamp Mills.**
Allis-Chalmers Co, Home Ins bldg, Chicago

**Stand-Pipes and Tanks.**
Caldwell, W E, Co, 200 East Main st, Louisville, Ky
Chicago Bridge & Iron Co, Chicago
Columbiana Boiler Co, Columbiana, O
Enterprise Boiler Co, Youngstown, O
Gem City Boiler Co, Dayton, O
Girard Boiler & Mfg Co, Girard, O
Hodge Boiler Co, East Boston, Mass
Keeler, E, Co, Williamsport, Pa
King Bridge Co, Cleveland, O
Means & Fulton Iron Works, Birmingham, Ala
North Penn Iron Co, 3d and Sedgley ave, Phila
Petroleum Iron Works Co, Washington, Pa
Riter-Conley Mfg Co, Pittsburg, Pa
Scaife, Wm B, & Sons Co, Pittsburg
Sharon Boiler Works, Sharon, Pa
Smith, Theo, & Sons Co, Jersey City, N J
Snow, T W, 300 Dearborn st, Chicago
Strutners-Wells Co, Warren, Pa
Tallerday Steel Pipe & Tank Co, Waterloo, Ia
Tippett & Wood, Phillipsburg, N J
U S Wind Engine & Pump Co, Batavia, Ill
Warren City Tank & Boiler Works, Warren, O
Wood, R D & Co, Philadelphia, Pa

**Steam Shovels.**
Austin, Mfg Co, Manhattan bldg, Chicago
Beatty, M, & Sons, Welland, Ont
Bucyrus Co, South Milwaukee, Wis
Hunt, C W, Co, Richmond Terrace, W N Brighton, NY
Marion Steam Shovel Co, Marion, O
Mead, John A, & Co, 7 Broadway, New York
Osgood Dredge Co, Albany, N Y
Souther, John, & Co, Boston, Mass
Thew Automatic Shovel Co, Lorain, O
Toledo Foundry & Machine Co, Toledo, O
Vulcan Iron Works Co, Toledo

**Steam Specialties.**
American District Steam Co, Lockport, N Y
Crane Co, Chicago, Ill
Darling Pump & Mfg Co, Box E, Williamsport, Pa
d'Estè, Julian, Co, 15 Canal st, Boston
Harrison Safety Boiler Wks, 3166 N 17th st, Phila
Lunkenheimer Co, Cincinnati, O
Manning, Maxwell & Moore, 85 Liberty st, New York
Maxfield, H E, & Co, 136 Liberty st, New York
Parson Mfg Co, 320 Broadway N Y
Robertson, Jas L, & Sons, 192 Fulton st, New York
Union Steam Spec. Co, 151 Franklin ave, Scranton, Pa
(see also Separators, Oil and Steam.)

**Steam Traps.**
American Blower Co, Detroit, Mich
Buffalo Forge Co, Buffalo, N Y
Crane Co, Chicago, Ill
d'Estè, Julian, Co, 15 Canal st, Boston
Sturtevant, B F, Co, Boston, Mass

**Steel Clips.**
Streeter, H A, 31 & 33 Indiana st, Chicago

**Steel Flanges** (Weldless).
Latrobe Steel Co, Girard bldg, Philadelphia

**Steel Ties.**
Koppel, Arthur, 68 Broad st, New York

**Stone.**
Bound Brook (N J) Crushed Stone Co
Leopold, J, & Co, 18 Broadway, New York
Thiel, August, Guttenberg, N J
Tomkins, Calvin, 130 Liberty st, New York

**Street Railway Supplies.**
Brill, J G, Co, Philadelphia, Pa

**Street Sprinklers and Sweepers**
Austin, F C, Mfg Co, Harvey, Ill
Brill, J G, Co, Philadelphia, Pa
Edson Mfg Co, 255 Atlantic ave, Boston
Good Roads Machinery Co Kennett Square, Pa
Oastler Steam Road Roller, 156 Fifth ave New York

**Structural Steel and Iron Work.**
Berlin Construction Co, Berlin, Conn
Brooks, T H, & Co, Cleveland, O
Eichleay, John, Jr, Co, Pittsburg
General Supply & Const'n Co, 8-10 Bridge st, N Y
Kratzer, W N, & Co, 3218 Smallman st, Pittsburg
Link Belt Engineering Co, Nicetown, Phila
Means & Fulton Iron Works, Birmingham, Ala
Minneapolis Steel Mach'y Co, Minneapolis, Minn
National Skylight & Const'n Co, 120 Liberty st, N Y
N J Foundry & Machine Co, 9 Murray st, N Y
North Penn Iron Co, 3d and Sedgley ave, Phila
Pedrick, E K, Co, 139 Liberty st, New York
Schreiter, L, & Sons Co, Cincinnati, O
Sharon Boiler Works, Sharon, Pa
Snare & Triest, 39 Cortlandt st, New York
Snead & Co Iron Works, ft of Pine st, Jersey City, N J
Streeter, H A, 31 & 33 Indiana st, Chicago
Tippett & Wood, Phillipsburg, N J
Walton Iron Co, Cincinnati
(see also Bridges and Buildings.)

**Stump Pulling Machine.**
Milne Mfg Co, 894 Eighth st, Monmouth, Ill

**Submarine Armor** (see Diving Apparatus).

**Superheaters** (Steam).
Power Specialty Co, 126 Liberty st, New York

**Tacks, Thumb**
Albrecht, C. R, 62 Fulton st, New York

**Tanks.**
Berquist, A S, 515 Bedford ave, Brooklyn, N Y
Hodge Boiler Works, East Boston, Mass
Pacific Tank Co, Los Angeles, Cal.
Riter-Conley Mfg Co, Pittsburg, Pa
Scaife, W B, & Sons, Pittsburg
Steel Storage Elevator & Const'n Co, Buffalo, N Y
Warren City Tank & Boiler Works, Warren, O
(see also Stand Pipes and Tanks.)

**Tapes** (Steel). See Measuring Tapes.

**Tapping Machines** (Pipe).
Smith, Anthony P, Mfg Co, Newark, N J

**Tents.**
Murray & Co, 329 S Canal st, Chicago

**Test Borings** (see Artesian Wells).

**Testing Laboratories** (see Laboratories).

**Testing Machines.**
Falkenau-Sinclair Machine Co, 109 N 22 st, Phila
Riehle Bros Test & Mach Co, 1424 N 9th st, Phila

**Thermometers** (Recording).
Bristol Co Waterbury, Conn

**Tie Plates.**
Diamond State Steel Co, Wilmington, Del
Railroad Supply Co, Bedford bldg, Chicago

**Ties**
Koppel, Arthur, 68 Broad st, New York
Wyckoff Pipe & Creosoting Co, Stamford, Conn

**Time and Cost Keeping.**
Industrial Time & Cost Keep. System, Bantam, Conn

**Time Detectors.**
Imbeaucr, E, & Co, 206 Broadway, New York

**Trading Cloth.**
Aloe, A S, Co, 414 North Broadway, St Louis
Favor, Ruhl & Co, 54 Park Place, N Y
Hardtmuth, L & C, 49 Barclay st, New York
(see also Instruments, Engineering, etc.)

**Transformers.**
General Electric Co, Schenectady, N Y

**Traps** (Sewer).
Sewer Trap Mfg Co, 61 Beekman st, New York

**Trench Machines.**
Carson Trench Machine Co, Boston Mass
Libbe Engineering & Construction Co, Toledo, O
Potter Mfg Co, 3010 N W ave Indianapolis, Ind

**Tubing** (Flexible Metallic).
Moore, Chas C, & Co, 22 First st, San Francisco

**Turbines.**
Camden Water-Wheel Wks, Camden, New York
Dayton Globe Iron Works Co, 7 Ludlow st, Dayton
Leffel, Jas, & Co, Springfield, O
Poole, Robert, & Son Co, Baltimore, Md
Risdon-Alcott Turbine Co, Mt Holly, N J
Smith, S Morgan Co, York, Pa
Stilwell-Bierce & Smith-Vaile Co, Dayton, O
Wood, R D, & Co, Philadelphia, Pa

**Turnbuckles.**
Cleveland City Forge & Iron Co, Cleveland
Merrill Bros, 467 Kent ave, Brooklyn, N Y

**Turntables.**
American Bridge Co, New York
Boston Bridge Works, 47 Winter st, Boston, Mass
Chicago Bridge & Iron Co, Chicago
Columbia Bridge Co, Pittsburg
Fort Pitt Bridge Works, Pittsburg, Pa
Hunt, C W, Co, Richm'd Terrace, W N Brighton, N Y
King Bridge Co, Cleveland, O
Koppel, Arthur, 68 Broad st, New York
McClintic-Marshall Construction Co, Pottstown, Pa
Mo Valley Bridge & Iron Wks, Leavenworth, Kan
Mount Vernon Bridge Works, Mount Vernon, O
Passaic Steel Co, Paterson, N J
Philadelphia Bridge Works, Pottstown, Pa
Phoenix Bridge Co, 1321 Arch st, Philadelphia
Virginia Bridge & Iron Co, Roanoke, Va
Wonham-Magor Eng. Wks, 29 Broadway, New York

**Valve Boxes.**
Cayuta Wheel & Foundry Co, Sayre, Pa
Clow, J B, & Sons, Lake and Franklin sts, Chicago
Drummond, M J, & Co, 192 Broadway, N Y

**Valves.**
Crane Co, Chicago, Ill
Crosby Steam Gage & Valve Co, Boston
Darling Pump & Mfg Co, Box E, Williamsport, Pa
(see also Hydrants and Valves.)

**Valves** (Gas).
Campbell, J B, Brass Works, Cascade st, Erie, Pa
Chapman Valve Mfg Co, Indian Orchard, Mass
Crane Co, Chicago, Ill
Ludlow Valve Mfg Co, Troy, N Y
Roots, P H & F M, Co, Cornersville, Ind

**Valves** (Gate).
Cayuta Wheel & Foundry Co, Sayre, Pa
Coffin Valve Co, Boston, Mass
Coldwell-Wilcox Co, Newburg, N Y
Crane Co, Chicago, Ill
Millar, Chas, & Son Co, Utica, N Y
Walworth Mfg Co, Boston, Mass
Wood, R D, & Co, Philadelphia, Pa

**Valves** (Pressure Regulating).
Ross Valve Co, Troy, N Y
(see also Pressure Regulators.)

**Valves** (Steam).
Cayuta Wheel & Foundry Co, Sayre, Pa
Chapman Valve Mfg Co, Indian Orchard, Mass
Crane Co, Chicago, Ill
Crosby Steam Gage & Valve Co, Boston
Ludlow Valve Mfg Co, Troy, N Y
Lukenheimer Co, Cincinnati, O

**Valves** (Stop).
Foster Engineering Co, Newark, N J
Reading Foundry Co, Ltd, Reading, Pa
Sweet & Doyle, Cohoes, N Y
Thompson, J, & Co, Philadelphia

**Varnish and Colors.**
(see Paints.)

**Vault Lights.**
Brooks, T H, Cleveland, Ohio

**Ventilators.**
Buffalo Forge Co, Buffalo, N Y
Merchant & Co, Inc, Philadelphia, Pa

**Vises** (Parallel).
Merrill Bros, 467 Kent ave, Brooklyn

**Wagons and Carts.**
Austin, F C, Mfg Co, Harvey, Ill
Climax Road Machine Co, Marathon, N Y
Columbia Wagon Co., Columbia, Pa.
Good Roads Machinery Co, Kennett Square, Pa
National Drill & Mfg Co, 159 La Salle st, Chicago
Port Huron Engine Co, Port Huron, Mich
U S Sanitary Co, Washington, D C
Watson Wagon Co, Canastota, N Y
Western Wheeled Scraper Co, Aurora, Ill

**Water Motors.**
Backus Water Motor Co, Newark, N J

**Water Softening Plants.**
Industrial Water Co, 126 Liberty st, New York
Kennicott Water Soft Co, 406 Great North. bldg, Chic
N Y Continental Jewell Filtration Co, 15 Broad st, NY
Pittsburg Filter Mfg Co, Pittsburg

**Water Storage Systems.**
Acme Water Stor & Const'n Co, Park Row bldg, N Y

**Water Wheel Governors.**
(see Governors, Water-Wheel.)

**Water Wheels.**
Cassel Auto Water Motor Co, Seattle, Wash
Doble, Abner, Co, Fremont & Howard, San Francisco
Pelton Water Wheel Co, 134 Main st, San Francisco
(see also Turbines.)

**Water-Works Tools and Supplies.**
Flint & Walling Mfg Co, Kendallville, Ind
Smith, A P, Mfg Co Newark, N J

**Well Drilling Machinery.**
American Well Works, Aurora, Ill
Cook Well Co, St Louis, Mo
Star Drilling Machine Co, 104 Fulton st, New York
Williams Bros, Ithaca, N Y

**Wharf and Pier Builders.**
Atlantic, Gulf & Pacific Co, 15-21 Park Row, N Y
McMullen, Arthur, & Co, 15-21 Park Row, New York
O'Rourke, John F, Park Row bldg, N Y
Phoenix Bridge Co, Phoenixville, Pa
San Francisco Bridge Co, 220 Market st, San Francisco

**Wheelbarrows.**
Cockburn Barrow & Machine Co, Jersey City, N J
Syracuse Chilled Plow Co, Syracuse, N Y
Steubner, O L, Long Island City, N Y
Western Wheeled Scraper Co, Aurora, Ill

**Whistles.**
Crosby Steam Gage & Valve Co, Boston
Lunkenheimer Co, Cincinnati, O

**Windmills.**
Flint & Walling Mfg Co, Kendallville, Ind
Temple Pump Co, 15th Place, Chicago
U S Wind Engine & Pump Co, Batavia, Ill

**Wire, Wire Rope and Cables.**
American Steel & Wire Co, New York & Chicago
Broderick & Bascom Rope Co, St Louis
Leschen, A, & Sons Rope Co, St Louis
Macomber & Whyte Rope Co, 21 S Canal st, Chicago
Roebling's, John A, Sons Co, Trenton, N J
Trenton Iron Co, Trenton, N J
Williamsport Wire Rope Co, Williamsport, Pa

**Worm Gearing.**
Morse, Williams & Co, Philadelphia, Pa

**Wire Fence** (see Fencing).

**Wood Preserving** (see Creosoting).

**Wrenches.**
Keystone Drop Forge Wks, 20th & Clearfield sts, Phila

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